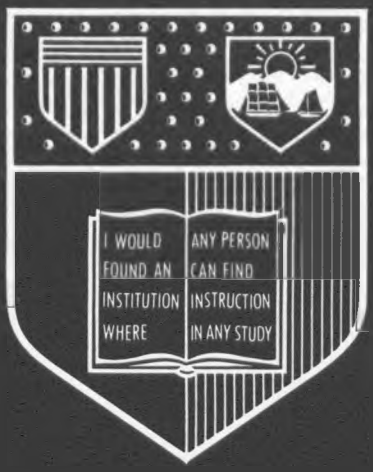

Cornell University Announcements

New York State College of Veterinary Medicine

Cornell University

New York State College of Veterinary Medicine

1983–84

A Statutory College of the State University at Cornell University, Ithaca, New York

Cornell University Announcements (USPS 132–860)

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Cornell Academic Calendar

1983–84

Registration	Monday and Tuesday, August 29 and 30
Fall term instruction begins	Wednesday, August 31
Labor Day (University holiday)	Monday, September 5
Fall recess:	
Instruction suspended, 1:10 p.m.	Saturday, October 15
Instruction resumed	Wednesday, October 19
Thanksgiving recess:	
Instruction suspended, 1:10 p.m.	Wednesday, November 23
Instruction resumed	Monday, November 28
Fall term instruction ends, 1:10 p.m.	Saturday, December 10
Final examinations begin	Friday, December 16
Final examinations end	Friday, December 23
Registration	Thursday and Friday, January 19 and 20
Spring term instruction begins	Monday, January 23
Spring recess:	
Instruction suspended, 1:10 p.m.	Saturday, March 24
Instruction resumed	Monday, April 2
Spring term instruction ends, 1:10 p.m.	Saturday, May 5
Final examinations begin	Thursday, May 10
Final examinations end	Saturday, May 19
Commencement Day	Sunday, May 27

The dates shown in the academic calendar are subject to change at any time by official action of Cornell University.

In enacting this calendar, the University has scheduled classes on religious holidays. It is the intent of the University that students missing classes due to the observance of religious holidays be given ample opportunity to make up work.

Announcement

Contents

2 Academic Calendar 1983–84
5 **The College of Veterinary Medicine**
5 History of the College
6 The College Library
6 Research Facilities
8 Admission to the College
11 Admission to the Graduate School
13 Finances
13 Financial Aid
18 Requirements for Graduation
20 Honor Societies
20 Legal Requirements to Practice
20 Health Services
20 Services for the Handicapped
20 Housing and Dining Facilities
21 Conduct of Students
23 **Description of Courses**
23 Anatomy
24 Pharmacology
24 Physiology
29 Pathology
31 Microbiology
33 Avian and Aquatic Animal Medicine
34 Clinical Sciences
38 Clinical Service Courses
39 Diagnostic Laboratory
39 Preventive Medicine
43 **Schedules 1983–84**
51 **Register**
63 **Index**
64 Tentative Academic Calendar 1984–85

Cornell University

The College of Veterinary Medicine

History of the College

From the very beginning of the University with the issuance of a charter in 1865, the founder, Ezra Cornell, insisted that a chair of veterinary medicine be established. His experience as an owner of purebred livestock had taught him the importance of animal health, and he instructed Andrew D. White, the first president, to seek out the best-qualified man to teach courses in veterinary medicine and surgery. It was the first time that veterinary science had been granted equal rank with other sciences in an American university.

President White secured the services of James Law, and the appointment was confirmed on August 4, 1868, by the Board of Trustees. A young, well-educated Scotsman, Law had graduated from the Edinburgh Veterinary College, studied under the great medical teachers of the day (William Turner in human anatomy and Joseph Lister in the principles and practice of surgery), and attended veterinary schools on the Continent. He had also taught at the New Veterinary College in Edinburgh and the Albert Veterinary College in London.

When classes began on October 7, 1868, Dr. Law's office was on the second floor of Morrill Hall, the first University building to be completed. A small museum and pharmacy were located in the basement. In Law's words: "Our clinical building was furnished by the campus grass, walled in by the great dome of God's blue sky, and watered and disinfected by the life-giving rays of the sun and the ozone from hill and dale, lake and forest. We had the common privileges that many a veterinarian has to avail himself of in his daily rural practice."

During the academic year 1869–70 a fairly complete course in veterinary medicine was taught by Professor Law to a class of about twenty. Of this group, four were graduated after four years of study with the Cornell degree of Bachelor of Veterinary Science. Three of these continued in the profession and became nationally distinguished through their accomplishments in disease control.

It was not until March 21, 1894, that the New York State Veterinary College was established at Cornell. It was the first contract college (later to be known as a statutory college) at Cornell, thereby setting the stage for a long and effective arrangement between the state and the University. A veterinary building (named James Law Hall some years later) was provided by the state, and the doors were opened for classes in the autumn of 1896. The school was composed of six faculty members of professorial rank, two instructors, and eleven students. Scholastic requirement for entrance was a high school diploma or its equivalent, a rather high standard for those days.

The early faculty recognized the importance of a good library and set this goal as one of their priorities. Governor Roswell P. Flower made a personal donation in 1897 to the library that now bears his name and houses an impressive collection of veterinary resource materials.

The college remained at the original site (at the southeast corner of East Avenue and Tower Road) until the summer of 1957. During that time it had expanded with the construction of a clinical complex along Garden Avenue and a large laboratory building (Moore Laboratory) to house the Department of Bacteriology and Pathology. In addition, the University had provided a large tract of land on Snyder Hill to be used for a research farm.

The present site of the college was occupied in July 1957, and the college has continued to expand in its teaching, research, and service to the people of the state. The present on-campus facilities occupy about twenty acres, with ancillary facilities on Snyder Hill and elsewhere. The latest additions are the eight-story Research Tower, dedicated June 27, 1974, and the Diagnostic Laboratory, dedicated October 17, 1978. Expansion is a continuing process at the college as it seeks to provide practitioners, scientists, and teachers for the future welfare of animals and man.

The New York State College of Veterinary Medicine is located along Route 366 at the eastern edge of the campus of Cornell University at Ithaca, a city of about thirty thousand permanent residents, situated in the famous Finger Lakes region of New York at the head of Cayuga Lake. The city is in the south-central part of the state, about 260 miles northwest of New York City and 50 miles south of Syracuse.

The College Library

The library, endowed by a gift from Roswell P. Flower, governor of New York when the college was founded, is named the Flower Veterinary Library in his honor. It is maintained partly by endowment funds and partly by appropriations from the state. The library is on the second floor of Schurman Hall. The large reading room, seating seventy, has display shelves for current journals, and areas of indexes, abstracts, and other reference books. The three levels of adjoining stacks include journals and monographs and are open for use. Individual study carrels are also available.

The library contains over sixty-nine thousand volumes and regularly receives about eleven hundred periodicals and series titles. This represents a worldwide selection of veterinary titles plus publications in the biomedical sciences, designed to support undergraduate, graduate, and research programs. Through the various libraries on the campus, about four million volumes and more than fifty thousand journals and serials are available to students. These collections, interlibrary loans, and photo-duplicated materials supplement the research potential of the veterinary library, which is rich in historical and basic research resources as well as recent monographs and selected government publications. A bimonthly newsletter is issued listing recent acquisitions.

Information on regulations and suggestions for the use of the library are provided to new students and faculty. Additional instruction in bibliographic research is available for advanced problems.

A computer-assisted literature search service, called COMPASS at Cornell, is available in the Flower Veterinary Library. It provides rapid access to numerous bibliographic data bases, including MEDLINE, CAB ABSTRACTS, and BIOSIS.

The college's Autotutorial Center contains a collection of over four hundred titles in slide, audiotape, and videotape format. These audiovisual materials enhance academic programs as well as provide opportunities for self study.

Research Facilities

Facilities for research are constantly expanding, both on campus and at nearby peripheral locations. On-campus laboratories are extensive, and additional laboratories for research on infectious, parasitic, and metabolic diseases have been constructed on Snyder Hill, about three miles from the campus, on a tract of 133 acres. Many of these facilities are located at Baker Institute; others are associated with the Bovine Research Center, avian diseases, Laboratory Animal Service, and equine research. The Equine Research Park, located on Warren Road, also has extensive facilities. Most-recent additions include a laboratory for the study of leukemia, a large-animal isolation facility, a dog quarantine building, and facilities for producing specific-pathogen-free calves and poultry.

Bovine Research Center

The Bovine Research Center was formed to integrate various investigations and available resources into a coordinated attack on bovine diseases. These research activities have been grouped into six programs: reproductive disorders, mastitis, digestive-system diseases, metabolic disorders, respiratory disease, and leukosis.

The first building of the center, the Bovine Specific Pathogen Free Facility, has been completed and will be used for the production and maintenance of calves that are completely free of known pathogens or that have a well-defined previous exposure and are specific-pathogen free. Fund raising has begun for the next units in the Research Center, the Bovine Multipurpose Research Building and the Bovine Isolation Facility.

Equine Research Park

Established in 1966, the Equine Research Park is a 160-acre teaching and research center located 1¼ miles from the main campus. Here, the faculty of the New York State College of Veterinary Medicine carry out research in equine nutrition, bone and joint disease, infectious diseases, drug testing on behalf of the racing industry, exercise physiology, and equine reproduction.

Feline Health Center

The purposes of the Cornell Feline Health Center are (1) to promote and conduct research with the goal of preventing or curing diseases of the domestic cat, (2) to provide continuing education on feline health to feline practitioners and cat owners, and (3) to aid feline practitioners when new or unknown diseases occur.

Established in 1974, the Cornell Feline Health Center formalized a program begun ten years earlier to study infectious diseases of the cat and expanded that program to study all diseases that pose a significant threat to the health of cats.

Under the direction of Dr. Fredric W. Scott a group of faculty, graduate research assistants, and staff from several departments within the New York State College of Veterinary Medicine collaborate in the quest to understand, prevent, and cure feline diseases. Each investigator conducts independent research in his or her area of expertise with help from investigators in whatever other area of expertise is needed. This multidisciplinary research may involve investigators in areas from clinical medicine to the most basic sciences in order to solve a particular disease problem.

Periodic newsletters and information bulletins with new information on feline diseases and cat care are sent to veterinarians and cat fanciers. An annual Feline Health Seminar for cat fanciers and breeders is held during the summer.

Poultry Disease and Aquatic Animal Disease Studies

Research

Poultry disease research is done on the campus in conjunction with the diagnostic and teaching laboratory and at the P. Philip Levine Laboratory on Snyder Hill, about three miles from the campus. A forty-one-unit disease isolation building forms part of the facilities on the campus; these units are used for studies on chickens, pet birds, and other avian species and on fish and shellfish. The facilities at Levine Laboratory consist of a two-story building, well equipped for research in the bacterial, viral, and parasitic diseases of chickens and turkeys.

Specific-pathogen-free flocks of several genetically distinct strains of chickens are maintained in a special breeder facility for the production of chicks and embryos. Also, there are several pens for holding young birds on a tract of land of several acres at the Levine Laboratory.

A duck disease research laboratory with excellent equipment is maintained at Eastport, Long Island, with the cooperation of the Long Island Duck Research Cooperative.

Diagnosis

The College of Veterinary Medicine maintains and staffs regional veterinary laboratories for poultry disease diagnosis at Ithaca, Kingston, and Eastport. The latter is combined with the Duck Research Laboratory. These diagnostic facilities serve the needs of the poultry industry in the surrounding area. Their staffs provide extension services and assist in the collection of materials and cases required for research in Ithaca.

A laboratory for diagnosis of aquatic animal diseases is also maintained at the college itself. It serves the finfish and shellfish industries and provides a source of materials required for teaching and research.

New York State Mastitis Control Program

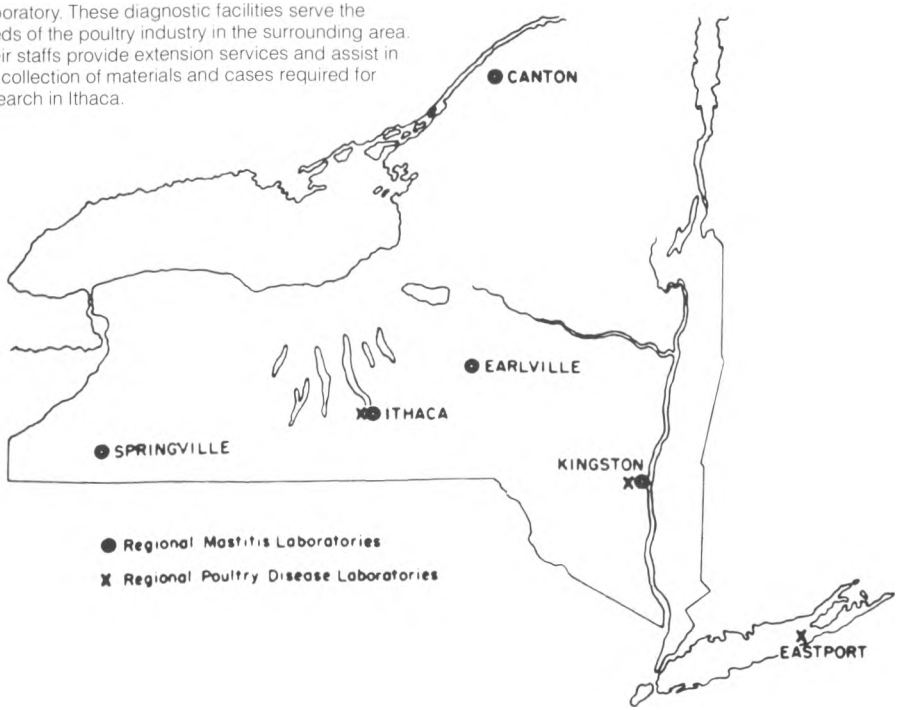
This program, a part of the Department of Clinical Sciences, has three primary concerns: (1) teaching, (2) consultation and diagnostic services to the practitioner and dairyman, and (3) research on mastitis control. Five diagnostic laboratories, located in dairy areas of the state, are operated within the program, which is directed by Dr. L. A. Wager.

Dr. G. J. Bennett is field veterinarian at the Canton Laboratory. Veterinarians and dairymen in eight northern New York counties, with a cow population of about 130,000, are served by this laboratory.

Dr. G. L. Hayes is field veterinarian at the Earlville laboratory, which offers service in ten central-eastern counties, with a cow population of about 257,000.

Dr. J. F. Cone is field veterinarian at the Kingston laboratory, which serves the nineteen eastern counties of New York, with an estimated cow population of 134,000.

Dr. G. W. Sellick is field veterinarian at the Springville laboratory, which serves an eleven-county area in western New York, with a cow population of about 192,000.



Dr. H. F. Schulte is field veterinarian for the central laboratory, located near the New York State College of Veterinary Medicine at Ithaca. At this laboratory, student training and research programs are conducted in addition to the diagnostic services provided for the eleven counties of central New York, which have about 134,000 cows.

All laboratories participate in research on basic and practical aspects of mastitis prevention, often in cooperation with the Mastitis Research Sections of the College of Veterinary Medicine and the College of Agriculture and Life Sciences.

James A. Baker Institute for Animal Health

In September 1950 the Board of Trustees of Cornell University established a new unit in the New York State College of Veterinary Medicine: the Veterinary Virus Research Institute. Formation of the Cornell Research Laboratory for Diseases of Dogs was approved as a section of the institute. In September 1975 the name of the institute was changed to the James A. Baker Institute for Animal Health.

The primary objective of the institute is to prevent loss from infectious diseases in animals. Toward this end, basic research is conducted on organisms that cause disease in order to increase knowledge of their nature, their means of spread, and methods whereby their spread can be controlled. Another objective of the institute is advanced training of workers in the fields of immunology and virology. Depending on the amount of laboratory space available, a limited number of graduate students and postgraduate visiting investigators are accepted.

After consideration of the many technical difficulties involved in work with viruses and other living organisms that may be airborne or transferred accidentally in other ways, a building complex was begun in 1950 and has been expanded from time to time. In this complex are twelve modern and fully equipped laboratories designed specifically for research and graduate teaching of virology, immunology, parasitology, genetics, nutrition, biochemistry, and electron microscopy, as well as a library, offices, and a tissue culture laboratory. There are twenty-six animal isolation units constructed to avoid unplanned infections. Specific-pathogen-free dogs are produced in a separate building.

The institute has recently been enlarged and renovated, and new equipment has been installed to accommodate a growing need for more sophisticated technology. A new building for housing specific-pathogen-free rats and mice and new laboratories dedicated to hybridoma technology and the use of radioactive materials have been created as part of this facility's improvement program.

Muenscher Poisonous Plants Garden

Located north of the James Law Auditorium, this living collection of poisonous plants includes most of those found in the Northeast and some from other parts of North America. It is maintained by the College of Veterinary Medicine in cooperation with Cornell Plantations. Each specimen is labeled with its scientific name, its common name, the name of the plant family to which it belongs, and information on toxicity. The garden is open to visitors year-round.

Clinical Facilities

A teaching hospital consisting of clinical facilities for both large and small animals is located adjacent to the research and preclinical teaching facilities. The hospital comprises numerous clinical services that draw on the experience and skill of the clinical faculty and the proficiency of research specialists in their specific areas of competence. Specialty sections within the clinical services move freely throughout the hospital to extend the best standard of care available to patients while exposing students to the combined appraisal of the teaching staff. An ambulatory service provides patient care on farms in the surrounding territory.

Clinical Nutrition Program

In 1972 an agreement was signed between Cornell University and the Mark L. Morris family for the establishment of (1) a position entitled the Mark L. Morris Professorship of Clinical Nutrition and (2) a teaching and research program in veterinary clinical nutrition, to be located in the New York State College of Veterinary Medicine. The Clinical Nutrition Program is currently composed of the Mark L. Morris Professor of Clinical Nutrition, other collaborative faculty members, one laboratory technician, and one graduate research assistant. The teaching program includes a two-credit core course in clinical nutrition and exposure of students to clinical cases of nutritional importance during seminars, rounds, and so on. Research activities in both large- and small-animal clinical nutrition are included in this program, as well as activities in extension and continuing education. A consulting service for nutritional problems is also available.

Admission to the College

Admission Policy

The Faculty Committee on Admissions endeavors to select the best-qualified applicants who, in its judgment, will be most able to successfully complete the veterinary medical curriculum and become competent, responsible veterinarians. Class size is limited to eighty students, and each year there are many more qualified applicants than the college is able to accommodate. Although the largest percentage of students admitted are residents of New York State, a limited number of well-qualified out-of-state applicants are also accepted. Applicants who feel their qualifications are outstanding are encouraged to apply regardless of residency.

It is the policy of Cornell University actively to support equality of educational and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age, or handicap. The University is committed to the maintenance of affirmative action programs which assure the continuation of such equality of opportunity.

Selection Criteria

In conducting its evaluation the committee is guided by the following criteria for determining the best qualified of many qualified applicants. No single criterion dominates, since the faculty members look at the whole person.

Academic Achievement and Aptitude

The need for learning large amounts of factual material means that successful applicants must have demonstrated achievement and potential for comprehension of scientific materials and an ability to solve complex problems. This ability is evaluated by examination of the applicant's grades in prerequisite courses, by examination of all college-level courses taken, and by consideration of the Graduate Record Examinations scores.

Quality of the Preparatory Program

Since the curriculum leading to the Doctor of Veterinary Medicine (D.V.M.) degree is academically rigorous, the committee takes into consideration the quality of the academic program presented by the applicant for admission. Such things as the variety and balance of courses taken, the difficulty of courses selected, and the ability to carry a heavy academic course load at a demanding institution are taken into account. Ideally, the applicant should have achieved excellence in a broad range of physical and biological sciences, social sciences, and the humanities. As no preference is given to applicants majoring in any particular field, the choice of a major is left to the individual and should be determined by the applicant's alternative career goals. Experience in teaching or research in basic sciences or areas indirectly related to human or veterinary medicine is considered in the evaluation.

Experience, Knowledge, and Achievement in Matters Relating to Animals and the Veterinary Profession

Veterinary medicine is an animal-oriented profession. Therefore an applicant's experience in working with animals and an understanding of the veterinary profession are viewed by the admissions committee as important considerations in the selection process. Such experience could involve breeding, rearing, feeding, and showing various kinds of animals, including companion animals, livestock, laboratory animals, zoo animals, or wildlife.

The applicant should be prepared to present evidence of hands-on experience with animals and sufficient contact with the veterinary profession to enable the admissions committee to determine that the applicant has some understanding of the duties and responsibilities of a practitioner and the scope of veterinary medicine.

Experience, Knowledge, and Achievement in Activities Unrelated to Veterinary Medicine

The well-rounded applicant can demonstrate significant achievements outside of academic and veterinary-oriented activities. Therefore the committee evaluates the depth and breadth of accomplishment in extracurricular activities, community services, hobbies, and nonacademic interests of all kinds.

Personal Characteristics

The committee endeavors to select applicants of integrity, reliability, maturity, and determination. It is important that professionals possess excellent oral and written communication skills, poise, leadership ability, and a talent for getting along with others. Therefore these and other characteristics are evaluated.

Academic Preparation

Admission to the New York State College of Veterinary Medicine normally requires a minimum of three years' preparation in an accredited college or university. This preparation does not have to be completed in a specialized college or in a designated preveterinary program. Potential applicants should enroll in an undergraduate institution with a reputation for academic excellence that offers the prerequisite courses as part of an accredited baccalaureate program. Because of the limitations in class size and the competition for admission, every applicant should make plans for an alternative career. The best preparation for the study of veterinary medicine is to fulfill all entrance requirements while attaining a well-rounded college education that includes preparation for an alternative career and completion of prerequisite courses.

The minimum course requirements for admission are shown in the following table:

	Semester Credits	*Quarter Credits*
English composition*	6	9
Biology or zoology (with laboratory)	6	9
Inorganic chemistry (with laboratory)	6	9
Organic chemistry (with laboratory)	6	9
Biochemistry	4	6
Physics (with laboratory)	6	9
General microbiology (with laboratory)	3	4.5

*One-half of this requirement may be satisfied with an oral communication course

All prerequisite courses, with the possible exception of microbiology and biochemistry, must be completed and documented with a letter grade at the time of application. A letter grade of C– or better is considered satisfactory in a prerequisite course.

Evidence of satisfactory completion of all prerequisite courses must be presented by August 1 before matriculation.

Applicants must present evidence of sound training in biology, physics, and chemistry, including an upper-level biochemistry course that requires organic chemistry as a prerequisite. This should be a complete course in general biochemistry. Half of a two-semester sequence does not provide a balanced background. A total of sixteen semester credits (twenty-four quarter credits) of chemistry is required. Some latitude is acceptable with respect to the distribution of credits within this total. If a course substitution is requested, the applicant should submit to the Office of Admissions a current, detailed course description that discusses the text used, course objectives, materials covered, and credits offered.

The microbiology prerequisite must include an introduction to the major groups and natural distribution of microorganisms, taxonomy, and terminology. Lecture materials should cover size, morphology, and structure of bacteria and fungi; bacterial motility, sporulation, physiology, growth curve, genetics, and multiplication; and bacteriophage. The applicant should have knowledge of sterilization and disinfectants and of environmental mycology and bacteriology with regard to water, soil, foods, milk, sewage, and animal wastes. The microbiology laboratory should develop skills in the use of the microscope in microbiology; in the preparation of smears and in staining procedures for bacteria; in the interpretation of motility; in the use of liquid- and solid-culture media, sterilization, inoculation and streaking techniques, interpretation of mixed growth, and colonial morphology; and in the recognition of staining and morphological characteristics of representative bacteria, counting techniques, dilutions and pipetting of bacterial suspensions, and bacterial counts of water and milk. Recognition and identification of common environmental and saprophytic bacteria and microbiology of skin, milk, water, sewage, and animal wastes must be included in preparatory course work.

Applicants should be proficient in written and spoken English. Deficiencies in fundamental communication skills hamper professional development in a rigorous scientific discipline. Although not required, courses in mathematics and statistics may provide a useful background.

Official transcripts documenting all courses taken must be submitted to the admissions office as part of the application. Prerequisite courses with grades of less than C– will not fulfill the prerequisite requirement for that course but will be included in the computation of the cumulative prerequisite grade-point average along with those courses that have been repeated. The Office of Admissions, in its evaluation of academic work, will determine which courses may be used to fulfill the prerequisite requirements.

Grades, although not the sole criterion for admission, are considered to be reliable indicators of academic motivation and aptitude. We expect applicants to have a minimum of a 3.0 (on a 4.0 scale) cumulative grade-point average and a minimum of a 3.0 prerequisite grade-point average. Accepted applicants generally have excellent academic records and grade-point averages well above 3.0. Since it is impossible to evaluate honors, pass-fail, or S-U grading systems, it is necessary for the applicant to obtain a letter grade for all the prerequisite courses and to have these grades certified by the registrar at the applicant's undergraduate institution. A limited number of advanced placement credits may be accepted at the discretion of the Faculty Admissions Committee and the Office of Admissions if they appear on the official transcript. In such cases, applicants should provide detailed information from the undergraduate college describing the advanced placement policy of that college.

Application Procedures

Application forms and detailed information can be obtained by writing to the Office of Admissions. Application materials will be ready for distribution in August of the year preceding possible matriculation. The complete application material, application fee, and supporting documents must be submitted to the Office of Admissions by *October 15*.

Essays

Essay on motivation for veterinary medicine. Each applicant is required to submit a paper that discusses those factors in his or her development and philosophy that would help the committee understand the applicant's motivation for a career in veterinary medicine. This essay must be typewritten, double-spaced, and no more than three pages long.

Essay about animal experience. Each applicant must submit a two-page, double-spaced, typewritten summary of his or her work experience with animals.

Letters of evaluation and recommendation. Forms for these letters are provided in the application packet.

Employer evaluations. An employer evaluation form is to be completed by each employer with whom the applicant worked to fulfill the animal experience requirement.

Adviser evaluation. A recommendation from the applicant's faculty adviser is required. Evaluations compiled by advisory committees are also acceptable. If the adviser does not know the applicant well enough to write an in-depth evaluation, a supplemental academic evaluation may be submitted *in addition to* the adviser's evaluation. This supplemental academic evaluation should be filled out by a faculty member who is well informed about the applicant's qualifications.

Personal letters of recommendation. Applicants are required to have two letters of recommendation submitted from persons they know well who can cite their specific qualifications. No more than two letters of this type will be considered for either reapplicants or first-time applicants.

Graduate Record Examinations

The Graduate Record Examinations (GREs) aptitude tests are required of all applicants. The GREs must be taken no later than October of the year before desired matriculation. Scores from examinations taken more than five years before the application deadline will not be considered.

The GREs are administered by the Educational Testing Service, Box 955, Princeton, New Jersey 08540. Results of the examinations will be reported to the college if the institution code R 2549-4, New York State College of Veterinary Medicine, is properly entered on the test forms.

The desirable minimum score for the aptitude portion (verbal and quantitative) is 1200. The advanced biology test or other advanced tests are not required but may be included. The college does not as yet use the results of the analytical portion of the GREs.

Counseling

Because of the large number of aspiring students, formal individual preapplication counseling sessions normally cannot be granted. The applicant should, however, consult his or her campus health careers adviser, who may be able to offer special counsel

Reapplication

If a previously denied applicant desires to reapply, he or she should follow the same process described above with only slight modification. Previous applications are retained for three years after the date of the last application. Reapplication will require new forms, the application fee, and a completely new personal essay as described earlier. This essay must include developments the reapplicant believes have strengthened his or her application. Previous essays will not be reviewed. All personal reports and other documents should be dated and signed.

It is the responsibility of the applicant to ensure that the college is provided with current information to supplement that submitted with any previous application. Reapplicants are not required to retake the GREs, but if that is done, the Faculty Admissions Committee will use whatever combination of scores is higher.

Advanced Standing

Applicants for admission with advanced standing as members of the second- or third-year class must present educational qualifications and professional accomplishments similar to those expected of students who have completed the previous year's courses here. Unless attending one of the schools or colleges of veterinary medicine accredited by the American Veterinary Medical Association, applicants must satisfactorily pass examinations in all of the work for which they desire advanced credit. No one will be admitted to any advanced class except at the beginning of the college year in September. The applicant must file a formal application and must be interviewed by the admissions committee and possibly by other faculty members. Places for admission with advanced standing are limited and depend on vacancies occurring in that particular class.

It is imperative that the admissions committee have detailed and translated summaries of veterinary medical academic programs and accomplishments for those seeking advanced placement from schools in foreign countries. Advanced standing applications are normally considered during the summer months before desired matriculation, but applications should be on file and completed as early as possible and not later than April 15.

Further Information

Additional questions about admissions can be directed to the Office of Admissions, C117 Schurman Hall, Cornell University, Ithaca, New York 14853.

University Requirements

Applicants accepted for admission are required to pay a registration fee and will be notified of the amount and the due date at the time of acceptance. No refunds will be made to applicants who withdraw after the due date of the fee.

Entering students must also fulfill the health requirements adopted by the Board of Trustees of Cornell University before being allowed to register.

Combined Courses

Through a program of double registration it is possible for D.V.M. students who did their preveterinary work in the College of Agriculture and Life Sciences at Cornell University and who were accepted after their third year of undergraduate study to complete their B.S. degree while working on the D.V.M. degree. Students interested in this program should consult their undergraduate faculty advisers.

Admission to the Graduate School

The College of Veterinary Medicine maintains an active program in graduate education. This is enhanced by cooperative programs with other colleges and departments.

Applicants holding a baccalaureate or equivalent degree may enter the Graduate School of Cornell University and pursue study for the degree of M.S. and Ph.D. in the College of Veterinary Medicine and allied departments of the University. In the Graduate Field of Veterinary Medicine a degree of Doctor of Science in Veterinary Medicine (D.Sc.) is also available. Within the Field of Veterinary Medicine are the folowing areas of concentration: anatomy, bacteriology, epidemiology, immunology, parasitology, pathology, pharmacology, physiology, surgery, theriogenology, veterinary medicine, and virology.

In addition to the Graduate Field of Veterinary Medicine, veterinary college faculty offer instruction in the following graduate fields: Animal Science, Biochemistry, Molecular and Cell Biology, Environmental Toxicology, Immunology, Microbiology, Neurobiology and Behavior, Nutrition, Physiology, and Zoology. A complete description of each field is contained in the current Graduate School Announcement.

Students already accepted in the D.V.M. program also have the opportunity to apply for combined degree programs. The D.V.M.-M.S. program enables a veterinary student, through summer registration in the Graduate School, to obtain an M.S. at the end of the summer following the senior year.

An innovative D.V.M.-Ph.D. combined program was developed that permitted a small number of highly qualified students to work alternately on the professional or the graduate degree with the objective of eventually receiving both. The federal funds that originally supported the program are no longer available. A student who undertakes the combined D.V.M.-Ph.D. program must have other sources of financial support and must obtain special approvals from the Field of Veterinary Medicine and the college.

Further information on all of these programs may be obtained by writing to the Graduate Faculty Representative, New York State College of Veterinary Medicine, Ithaca, New York 14853.

Application for admission must be made to the Graduate School, Sage Graduate Center, Cornell University. Applications for fall term or summer admission will be received until March 1; applications for spring term admission will be received until October 1.

All applicants to the graduate Field of Veterinary Medicine should submit results of the Graduate Record Examinations Aptitude Test. Scores of an advanced test are also desirable.

The College of Veterinary Medicine, alone or in combination with other departments of the University, offers advanced students excellent opportunities for study and investigation. Its situation gives it abundant and varied material for research, and it has ample research facilities. It encourages graduate and advanced students to pursue independent investigations. Courses of study especially adapted to advanced work and research will be found among those listed on pp. 23–47 of this Announcement.

A student who holds the degree of Doctor of Veterinary Medicine from a recognized college or school in the United States or Canada may transfer one year's residence credit for that work toward the Doctor of Philosophy degree whenever the student's Special Committee certifies that the work done in the years of professional study formed an integral part of the work required for the doctorate and was of equivalent quality.

Doctor of Science in Veterinary Medicine

Admission to candidacy for the degree of Doctor of Science in veterinary medicine (D.Sc. in V.M.) is a function of the Field of Veterinary Medicine of the Graduate School. The following requirements must be met before admission to candidacy:

1. The applicant must have been graduated for at least five years from an approved school of veterinary medicine.
2. The applicant must have demonstrated, by published papers, the ability to do independent meritorious research.

Applicants who have earned no graduate credit beyond their D.V.M. degree must complete not less than four residence units to qualify for the degree. It is considered that at least two units of work leading to the degree of Doctor of Veterinary Medicine are an integral part of this professional degree. Those who have a Master of Science degree or its equivalent from an approved college or university may complete the minimum residence credit by acquiring at least two additional units.

After admission a candidate will select a member of the faculty in veterinary medicine to serve as chairperson of the Special Committee. The faculty of the field will then select two other members of the committee. These three individuals will have charge of the candidate's program and will be responsible to the faculty of the field for supervising the candidate's work, which must fall in the following categories.

1. Advanced courses in any of the sciences that have a relation to medicine. Selected courses that are part of the regular curriculum of the Cornell University Medical College may be accepted for not more than half of the total credit in this category. In no case will credit be granted for courses that are part of the regular curriculum in veterinary medicine or for similar courses in the Medical College.
2. Regular attendance and study in any of the clinics of the College of Veterinary Medicine or of the Medical College.

All candidates must have at least two-thirds of their work in courses that can properly be included under category 1. If desired, they may take all their work in category 1. Not more than one-third of their work may be taken in category 2.

Courses will be deemed satisfactorily completed only upon receipt of a regular transcript of credits. After completion of course work, each candidate for this degree must present an acceptable monograph or thesis in the area of special interest and must submit to a general examination covering the subject matter of his or her work. The Special Committee will set the time and place of the examination and invite all members of the field and the graduate faculty of other fields who have participated in the student's training to attend. They have the right to examine the candidate and express to the Special Committee their opinions of the candidate's competence, but only the Special Committee has the responsibility for recommending the student for the degree. The

recommendation is addressed to the faculty of the Field of Veterinary Medicine of the Graduate School, which then makes recommendations to the Graduate School.

Finances

Tuition and Fees

Tuition and fees for Doctor of Veterinary Medicine degree candidates are $6,350 a year for New York State residents and $6,700 a year for nonresidents. Most students in the college do not live in University housing. The cost of room and board in Ithaca for 1983–84 is estimated at $3,600. Books, instruments, and supplies cost approximately $600 a year. An additional allowance of $2,230 should be made for clothing, laundry, local transportation, entertainment, telephone, and incidentals. These estimates are based on standard budget figures provided by the University's Office of Financial Aid for the purpose of allocating funds and budgeting for financial aid. Individual expenditures may exceed these figures, depending on personal preferences in housing, transportation, dining, and so on. The amount, time, and manner of payment of tuition, fees, or other charges may be changed at any time without notice.

Students who want to pay tuition in monthly installments should contact Academic Management Services, Inc. by telephoning 800/556-6684, a toll-free number. Subscribers to the service pay a $35 fee.

Courses of Study describes University policies, student services, fee schedules, and payment procedures.

Refund Policies

Part of the amount personally paid for tuition will be refunded if the student obtains an official certificate of leave of absence or withdrawal at the office of the dean or director of the academic division involved. Students who terminate their registration in the University in this manner during a regular term will be charged tuition from the official University registration day to the effective date of the certificate as follows: first week, 10 percent; second week, 20 percent; third week, 30 percent; fourth week, 40 percent; fifth week, 60 percent; sixth week, 80 percent; seventh week, 100 percent, except that no charge will be made if the effective date is within the first six days of the semester, including registration day.

The University makes available tuition insurance, which provides refunds in event of leave of absence or withdrawal for medical or emotional reasons. Complete details regarding this coverage and applications accompany the August tuition bill.

The $40 application fee for University residence halls is nonrefundable except when lack of space prevents the offer of a room assignment. The $100 security deposit, which guarantees a contract for a room in the residence halls, is refundable, less damage charges, upon fulfillment of the contract.

Students participating in a prepaid dining plan who withdraw from the plan during a semester are eligible for a prorated refund based on the number of days the contract was in effect.

Financial Aid

Information and guidance regarding financial aid for veterinary students is available from the college Office of Financial Aid. A description of the methods, procedures, calendar, resources, and policies can be found in the college publication *Financial Aid*. This brochure is updated annually. Although grants and scholarships are not abundant, the demonstrated needs of students presently enrolled have been met. Approximately 85 percent of the financial aid available for the coming year will be through self-help programs such as Health Professions student loans, National Direct Student Loans, Guaranteed Student Loans, other loans, and the College Work-Study Program. The college's policy of support is based on the assumption that parents and spouses are willing to help finance the education of their children or spouses to the extent possible.

To standardize procedures and provide uniform criteria for estimating family financial strength, the college uses the Graduate and Professional School Financial Aid Service (GAPSFAS) and federal income tax information. The college Office of Financial Aid makes individual need analyses, and available aid is recommended accordingly. Financial aid packages prepared by the college Office of Financial Aid may combine loans, employment, and gifts or grants.

A veterinary student who desires financial aid should request a GAPSFAS application form from the college and must complete it by March 1 for aid beginning the following autumn. Applicants interviewed for admission to the first-year class will receive GAPSFAS forms when interviewed. Application for financial aid does not affect the admissions evaluation process.

Residents of New York State who qualify for Tuition Assistance Program (TAP) awards must apply each year to the New York State Higher Educational Services Corporation, 99 Washington Avenue, Albany, New York 12255. Applications should be submitted in early summer; the deadline is March 31 of the academic award year.

Loan Funds

Sources for loans to veterinary students are as follows: the Cornell Veterinary Alumni Association, the New York State Veterinary Medical Society, the Family of David E. Wright '12, the Dean W. A. Hagen Fund, National Association of Federal Veterinarians Emergency Loan Fund, Student Emergency Loan Fund of the Auxiliary to the New York State Veterinary Medical Society, the Charles H. Webster Veterinary Fund, the Joseph Brender Student Loan Fund, the Omega Tau Sigma Fraternity Loan Fund, the Health Professions Loan Program, National Direct Student Loans, New York State Higher Education Services Corporation (similar services are available to residents of most states), and certain other funds administered by Cornell University. Most guaranteed

loans defer interest or principal payments until the student has left school. Interest rates vary according to the source of the loan, and certain short-term loans are interest-free.

Guaranteed student loans are also available through three programs that provide partial or no interest subsidy: New York Supplemental Loan Program for students in medicine, dentistry, and veterinary medicine; Auxiliary Loan to Assist Students (ALAS); and the Health Education Assistance Loan (HEAL) program of the United States Department of Health and Human Services.

Scholarships for Veterinary Students

Veterinary students may receive help from various scholarship funds throughout the four-year course of study. The nature and extent of such assistance depends on scholastic achievements, specific criteria established by each benefactor, and recommendations of the appropriate college committees. Application procedures are outlined in announcements that are posted and distributed to each student. Committee evaluations and recommendations are completed at the end of spring semester. Scholarship stipends are handled by the University treasurer and credited to the student's academic charges during the following year. Students interested in securing other forms of financial assistance should contact the college director of financial aid.

Numerous prizes are also available for veterinary students and are subject to conditions listed under each award. Many of the prizes, awards, and scholarships were established with endowments, so that the income distributed and number of awards may vary from year to year.

Albany Kennel Club Scholarship. This scholarship is awarded to a New York State resident who by character, achievement, and financial need is a worthy recipient. It is given as a mark of respect for the New York State College of Veterinary Medicine, which has contributed so substantially to the well-being of our four-footed friends.

Auxiliary to the Long Island Veterinary Medical Association Scholarship. This scholarship is awarded to an outstanding veterinary student from Long Island.

Auxiliary to the New York State Veterinary Medical Society Scholarship. Two scholarships are awarded each year—one to a student at the end of the sophomore year and the other available to any student. The award of these scholarships will be based on the applicants' financial need and ability to do creditable academic work. Additional awards may be made as funds are available.

Auxiliary to the Student Chapter of the American Veterinary Medical Association Scholarship. This award is for the purchase of textbooks required in the veterinary program. Married students beginning their second year and who have demonstrated financial need and satisfactory academic standing are eligible. Credit accounts are established at the bookstore for the recipients.

Jack Edward Baker Memorial Loan-Scholarship Fund. An endowed fund established in 1981 by Mrs. Frances Baker in honor of her "horse doctor" husband, Jack Edward Baker, D.V.M. '37. The fund is dedicated to the faculty and the high quality of veterinary training received by Dr. Baker at Cornell University. Proceeds from the endowment are to be used for veterinary students in need of financial assistance.

Bide-A-Wee Home Association Scholarship. A scholarship established in 1982 that is available for a fourth-year veterinary student to provide financial support for tuition costs during the academic year. The award is offered in exchange for a minimum of one year's employment, at competitive rates, with the Bide-A-Wee Veterinary Clinic in Wantagh, Long Island. Applications must be made to the college Financial Aid Office.

Harriet G. Bird Memorial Scholarship. Established by the Merwin Memorial Free Clinic for Animals, Inc., for Massachusetts residents. The award is based primarily on the financial need of applicants who maintain satisfactory academic performance.

The Joseph Brender Student Aid Fund. Established by friends of Joseph Brender, this memorial loan-scholarship fund provides income for an annual scholarship award to veterinary students, with preference given to ethnic minority students.

The Champion Willowside Drumroll Scholarship. This award is dedicated to the memory of Ch. Willowside Drumroll by Mr. and Mrs. Wharton M. Hirst, for a deserving student who shows capability and interest in research. Preference is given to Pennsylvania residents.

Charlie and Chico Memorial Scholarship. An award dedicated to the memory of two faithful companion dogs, established by Mr. and Mrs. Alfred Morra in 1979. The scholarship is designated for a veterinary student who is from Connecticut or the New England area. It is to be given to a student who exhibits special care and concerns for small animals, who has definite financial need, and who maintains creditable academic performance.

The Dorothy R. Clay Scholarship Fund. This fund was established in 1981 from the Dorothy R. Clay estate and is designed to provide scholarship aid for veterinary students.

Dr. William A. Dennis and Walter R. Dennis Loan-Scholarship Fund. A fund established in 1981 by Walter R. Dennis, D.V.M. '38, in honor of his brother, William A. Dennis, D.V.M. '26. The recipient is to be selected by a committee of large-animal clinicians according to criteria established by the donor (large-animal interests, academic excellence, specific geographic background, and personal attributes).

Diamond Scholarship Award. This award was established in 1981 and is designated for a student entering the third year of veterinary studies who has an academic rank in the upper one-third of the class and a definite financial need.

Priscilla Maxwell Endicott Scholarship. This endowed scholarship was established in 1977 in honor of Niel W. Pieper, D.V.M. '32. The income is to be used primarily for support of Connecticut students in the college. It is awarded on the basis of creditable academic performance, personal attributes, and financial need. If the scholarship is not needed for Connecticut students, it may be used for students from other New England states.

Equine Summer Experience Scholarship. Established to offer increased experience to students interested in equine medical practice, this scholarship is supported by organizations in the equine industry and by equine veterinary practitioners.

Irene Heinz Given and John LaPorte Given Veterinary Scholarship. The award is administered by the Committee on Admissions, in accordance with the intent of the trustees of the Given Foundation, to help qualified students applying for admission who might otherwise be financially unable to attend this college.

Arthur G. Hall Scholarship. Established in 1975 as an endowed scholarship for needy and worthy students who maintain the moral standards required by the rules and regulations of the college.

Bertha L. Hamilton Scholarships. Since 1972 a portion of the annual income of the Bertha Hamilton Trust has been donated to the College of Veterinary Medicine for scholarships to be awarded by the faculty on the basis of academic performance and financial need. Ten to fifteen scholarships are available each year.

David Kennedy Johnston Scholarships. Under the will of Nettie J. Huey, funds were set aside to provide scholarships to students in the College of Agriculture and Life Sciences and the College of Veterinary Medicine. Five to ten scholarships are available each year.

Valentine Mott Knapp Scholarship. This annual scholarship was established through the will of David V. Knapp as a memorial to his brother, Dr. Valentine Mott Knapp '04. The award is made at the end of the third year. In awarding the scholarship the faculty will take into consideration the ability of the applicant to do creditable academic work, the personal characteristics of the applicant with respect to professional attitude, and financial need.

Madelyn C. Kreisler Scholarship. Established in 1977 from the Madelyn C. Kreisler estate to provide scholarships in veterinary medicine.

Germaine B. Little Student Loan Fund. This loan-scholarship fund was established by the will of Germaine B. Little. Income from this fund is awarded annually to selected veterinary students who have demonstrated financial need.

Miles C. Markham Scholarship. This endowed scholarship was established in 1976 in honor of Dr. Miles C. Markham by his wife, Hedwig, for worthy, needy students in the college. It is awarded on the basis of general worthiness of applicants, taking into consideration their overall character, academic ability, and financial needs.

Dr. John G. Marvin Scholarships. Sponsored by the Western New York Veterinary Association in honor of Dr. John G. Marvin '30, of Fillmore, New York. The scholarships are awarded to students who have completed their third year of study and are residents of western New York counties. Selection is based on financial need, and the awards are presented at the Erie County Fair.

Merck Company Foundation Veterinary Student Aid Program. A special program established in 1981 by the Merck Company Foundation to provide funds for student aid in schools of veterinary medicine. Recipients are selected on the basis of financial need by the Committee on Scholarships.

Dr. Lykergus W. and Alma Fay Messer Memorial Scholarship. A bequest from the estate of Alma Fay Messer established this scholarship in 1981 in honor of her husband, Lykergus W. Messer, D.V.M. '28. The income from the fund is to be used for scholarships for veterinary students in need of financial assistance.

New York State College of Veterinary Medicine Loan-Scholarship Fund. This loan-scholarship fund was established from contributions to the college by alumni and friends through the 1976–80 campaign for Cornell veterinary medicine. Income from the fund is offered annually as scholarship support for students with financial need.

North Shore Animal League Scholarship-Loan Fund. An endowment provided by the North Shore Animal League in 1983. Earnings are to be used for scholarship support of veterinary students, with preference for those having small-animal interests.

Pfizer Scholarship. This scholarship is awarded to a student at the end of the third year whose academic achievement is adequate, whose need for the award is clear, and who shows good potential.

Plainfield Kennel Club Scholarship. This is an award for a veterinary student from New Jersey who is in need of financial assistance.

Mrs. Cheever Porter Foundation, Inc., Student Loan-Scholarship Fund Scholarship. Supportive of organizations working with animals, the Mrs. Cheever Porter Foundation endowed this scholarship in 1982.

Putnam Kennel Club Scholarship. The club provides scholarship support for a deserving veterinary student from New York State whose major interests are in the small animal area.

Ryman and Katherine Powell Student Fund. This loan-scholarship fund was established by two veterinarians, Frank Powell '63 and Joseph Powell '67, in honor of their parents. Earned income from this endowment is awarded annually in the form of a scholarship, with preference given to students from western New York State.

Dorothy S. Rex Student Aid Fund Scholarship. This endowment fund, established in 1979 by the Dorothy S. Rex estate, is designed to help educate worthy young men and women in veterinary science.

Sewell-Metzger Memorial Scholarship. An endowment provided in 1980 by the will of Dorothy Metzger is to be used for scholarship support of veterinary students who have completed three years of academic training and have demonstrated interest in small animal research, especially for the canine species.

Maurice H. Skyer Memorial Scholarship. Provided by the Monticello-Goshen Chapter of the United States Harness Writers Association, this scholarship of $300 is to be awarded to a student from Orange, Sullivan, Ulster, Delaware, or Dutchess County in New York, or from Pike, Wayne, Lackawanna, or Luzerne County in Pennsylvania. The student must be interested in working with horses. The scholarship is awarded for use in the fourth year.

Snow Valley Dog Training Club Scholarship. The award is designated for a student from Oswego County, New York, who has good academic standing and a demonstrated financial need.

Thomas F. Tanneberger Memorial Scholarship-Loan Fund. A fund established by the veterinary class of 1975 in honor of Thomas F. Tanneberger, Cornell 1975, who was killed in an auto accident in 1979. Earnings are to be used to support scholarships for veterinary students who have made outstanding athletic contributions during their lifetime, with preference for those coming from the northern New York area.

The Jim Dale Thomas Memorial Scholarship. This award was established as a prize in 1965 and became a scholarship in 1969. The scholarship is awarded, for use in the fourth year, to a third-year veterinary student who has shown an interest in dairy cattle practice and has a high level of capability in this field. The award is made on the judgment of the faculty of the Department of Clinical Sciences.

Troy Kennel Club Scholarship. This scholarship of $250 is for a veterinary student who needs financial assistance and who has maintained good academic standing.

Colonel and Mrs. Louis G. Weisman Fund. This endowed fund can be used for either loan or scholarship purposes at the discretion of the college. Scholarships are granted from fund earnings to students on the basis of academic performance and financial need.

Yonkers Raceway Foundation Scholarship. By action of the executive committee of the Yonkers Raceway Foundation, an endowed scholarship of $500 was established at the College of Veterinary Medicine to be awarded to a needy student who is a resident of New York State. The same criteria will be used in awarding this scholarship as are used in selecting the candidates for the Valentine Mott Knapp scholarship.

Prizes for Veterinary Students

These are among the prizes awarded at the college annual Honor Day Banquet held each year in the spring.

American Animal Hospital Association Student Award. This award of an engraved plaque and a letter of commendation is made to a senior in recognition of outstanding proficiency in small-animal medicine and surgery. The nominations are made by faculty of the Medical and Surgical Sections of the Department of Clinical Sciences who are responsible for teaching in the Small Animal Clinic.

The James Gordon Bennett Prize. In 1916 Mr. James Gordon Bennett, New York, New York, endowed this prize for the students who show the greatest humaneness in handling animals, with special reference to the use of anesthesia. Mr. Bennett was the editor of the *New York Herald* (forerunner of the *Herald Tribune*) a century ago. A man of diverse abilities and interests, he is the person who dispatched Henry M. Stanley to Africa in 1870 to find Dr. David Livingstone. Nominations are made by the faculty of the Section of Anesthesiology in the Department of Clinical Sciences.

The Anne Besse Prizes. Miss A. B. Jennings of New York City endowed this prize in 1925 for the best work in large animal medicine. Nominations are made by the Medical Section faculty of the Department of Clinical Sciences who teach large animal medicine.

The Frank Bloom Pathology Award. This prize was established in 1978 with an endowment by Dr. Frank Bloom. Dr. Bloom, a 1930 Cornell graduate, is a Charter Diplomate of the American College of Veterinary Pathologists as well as a Diplomate of the American College of Laboratory Animal Medicine. He has practiced in Flushing, New York, taught at Downstate Medical Center, and has published quite extensively. The nomination for a senior who has demonstrated special excellence in pathology is made by the Department of Pathology.

The Charles Gross Bondy Prize. Mr. Richard Bondy, New York, New York, endowed this prize in 1929 as a memorial to his son. It is given for the best work in the courses in practical medicine and surgery of small animals. Nominations are made by the faculty of the Medical and Surgical Sections of the Department of Clinical Sciences who teach in the Small Animal Clinic.

The A. Gordon Danks Large Animal Surgery Award. This award was initiated in 1978 by the faculty of the Surgical Section of the Department of Clinical Sciences who teach in the Large Animal Clinic. It is in recognition of the outstanding contributions of Professor Emeritus A. Gordon Danks, first director of student administration and admissions and former chairman of the former Department of Large Animal Medicine and Surgery. It is presented to a senior demonstrating outstanding knowledge and talent in the diagnosis and treatment of surgical problems of large animals. Basic and applied knowledge, diagnostic abilities, general surgical skills, and patient care exhibited during the clinical rotations are considered in the presentation of this award.

The Donald D. Delahanty Memorial Prize. This prize was established as a special memorial to Dr. Donald Delahanty, a member of the Department of Large Animal Medicine, Obstetrics, and Surgery from 1952 to 1975. The prize is given to a fourth-year student who has shown an interest in equine practice and a high level of proficiency in the field. The candidate is nominated by the faculty of the Department of Clinical Sciences concerned with the equine patient.

American Association of Feline Practitioners Award. This award of a recognition plaque and two years' free membership in the American Association of Feline Practitioners is to a senior who has shown special interest and accomplishment in feline medicine and surgery. Selection of the recipient is made by the faculty of the Small Animal Clinic.

The Gary Bolton Memorial Cardiology Award. Funds for the endowment of this award arose from donations made by friends and colleagues of Doctor Gary R. Bolton in memory of his outstanding contributions to the field of small-animal cardiology. Dr. Bolton was a member of the faculty and taught cardiology for a decade. Dr. Bolton was also known and respected as a compassionate veterinarian who exhibited empathy to his patients and their owners. A fourth-year student who has demonstrated understanding and expertise in cardiology and an empathy for patients that is compatible with the philosophy of Doctor Bolton will be nominated by the faculty of the Small Animal Clinic for this award.

The Myron G. Fincher Prize. An award initiated in 1980 through an endowment from Dr. Niel W. Pieper '32, given in honor of Professor Emeritus Myron G. Fincher '20. It is in recognition of the many contributions to the college by Dr. Fincher. Always a gentleman, he firmly demanded the best from his students and played a leading role in the instruction of large animal medicine and obstetrics for forty-five years. The award is presented to a senior student who has demonstrated the best work in courses dealing with large animal obstetrics and reproductive diseases. Both academic and practical performance are considered. Nominations are made by the Section of Theriogenology in consultation with other clinical faculty responsible for fall-semester teaching.

The Gentle Doctor Award. Sponsored by the Class of 1979, this award was made possible by Dr. William E. Hornbuckle's contribution of the money received from the Norden Distinguished Teacher Award to the Class of 1979. This award, a bronzed statue of the Gentle Doctor, is to be given to the senior who demonstrated the best patient care in the Large or Small Animal Clinic. The candidate is nominated by the staff of the Department of Clinical Sciences.

Hill's Award for Excellence in Clinical Nutrition. Hill's Pet Products provides an engraved bronze plaque and cash prize to the fourth-year D.V.M. student who exhibits the greatest interest, knowledge, and proficiency in clinical nutrition as it applies to the diagnosis, treatment, and management of small animal diseases, and also to the third-year student who has achieved the highest academic grade in the Clinical Nutrition course. Determination of the fourth-year recipient rests with the faculty responsible for teaching nutrition and clinical sciences.

The Grant Sherman Hopkins Prize. The endowment for this prize was given by Mrs. Ann Ottaway Hopkins in 1955 in memory of her husband, who was a member of the original faculty and served the University and college for forty-five years as professor of veterinary anatomy. It is awarded on the recommendation of the faculty in the Department of Anatomy on the basis of interest, ability, perseverance, and performance in the work in that department.

The P. P. Levine Prize in Avian Medicine. This prize was established from donations made by friends and colleagues of Dr. P. P. Levine in memory of his many contributions to the field of avian medicine, both nationally and internationally. Dr. Levine was a long-time member of the Cornell faculty and was the first chairman of the Department of Avian Diseases. Much of his life was dedicated to the training of young people and encouraging them to aspire to excellence. In the spirit of encouraging excellence, this prize is awarded to the second-year veterinary student who has attained the highest grade in the course on avian medicine.

The Merck Manual Awards. Two copies of *The Merck Veterinary Manual*, embossed with the names of the recipients and provided by Merck and Company, Inc., are presented to members of the graduating class. The basis of the award may vary from year to year and is determined by the dean and the director of student administration. It will be awarded this year in special recognition of outstanding advancement in scholastic performance.

The Jane Miller Prize. Funds for the endowment of this prize were given by Dr. Frank H. Miller, a trustee of Cornell University for twenty consecutive years, a graduate of McGill University, and cofounder, with H. K. Miller, of the first small-animal hospital in New York City. The prize is for the best work in veterinary physiology. It is awarded as a memorial to Dr. Miller's wife to members of the second-year class. Candidates are nominated by the faculty of the Department of Physiology.

The Malcolm E. Miller Award. In 1965 Mrs. Mary Wells Miller established this award in memory of her husband, Dr. Malcolm E. Miller '34, a former professor of anatomy and the head of that department from 1947 to 1960. The recipient is to be a fourth-year student who, in the judgment of the dean and the director of student administration, has demonstrated perseverance, scholastic diligence, outstanding improvement, and other personal characteristics that will bring credit and distinction to the veterinary profession.

The Mary Louise Moore Prize. Dr. Veranus A. Moore established this endowed prize as a memorial to his wife; it is given for the best work in bacteriology. Dr. Moore served as head of the Pathology and Bacteriology Department and as dean of the Veterinary College from 1908 to 1930. Nominations are made by the Department of Veterinary Microbiology.

The New York State Veterinary Medical Society Prize. Funds for this prize are provided annually by the society for the best case report. Members of the fourth-year class are eligible to compete. Nominations are made by the Senior Seminar Committee, who judge the quality of the case reports.

The Norden Distinguished Teacher Award. The recipient must be a full-time member of the veterinary medical faculty and be primarily engaged in teaching, which may include part-time research. His or her preceptorship and teaching ability, as judged by responsiveness of the students, and his or her moral character and leadership shall be the primary qualifications considered.

Philotherian Photographic Prizes. Dr. and Mrs. Hadley C. Stephenson established this endowment. Photographs of domesticated animals, submitted by students or their spouses, are judged by a committee appointed by the dean. Two prizes are awarded on the basis of individuality of the animal, its enjoyment of its surroundings, and the effect it has on the feelings of the judges.

The Phi Zeta Award. The Alpha Chapter of Phi Zeta, the honor society of veterinary medicine, acknowledges the second-year student with the best academic record upon completion of the first three semesters of study. The recipient of the award receives the Beeson-MacDermott *Textbook of Medicine*.

Sheidy Prize for Pharmacology. Awarded to a member of the graduating class who, in the opinion of the faculty of the Department of Pharmacology, has demonstrated an outstanding ability to incorporate the principles of pharmacology into the treatment, maintenance, and care of the patients that the student has been prepared to serve professionally. The recipient of the award receives a specially inscribed copy of *Veterinary Pharmaceuticals and Biologicals*.

The Anna Olafson Sussex Pathology Award. This award was endowed in 1974 by Peter and Harriette Olafson in memory of Dr. Olafson's sister. The award is to be given at the end of the third year and is to be made on the recommendation of the people actively engaged in teaching pathology.

The Jacob Traum Award. Through an endowment established by friends of Jacob Traum '05, professor of bacteriology emeritus, University of California, and formerly chief scientist at the federal Plum Island Animal Disease Laboratory, this prize is awarded to the fourth-year students who are adjudged by the Department of Veterinary Microbiology as having exhibited in their scholastic career superior interest and accomplishment in bacteriology, epizootiology, pathology, and virology, including aptitude for, and expressed interest in, research on infectious diseases.

The Horace K. White Prizes. An endowment for these prizes was originally given by Mr. Horace K. White (and later his sons, of Syracuse, New York) for the students whose academic records for the entire veterinary course are the highest. This award, originally called the President's Prize, dates back to 1873 and is probably the longest-standing prize at Cornell. The original donor was a brother to Andrew Dickson White, the first president of the University.

The Prize of the Auxiliary of the American Veterinary Medical Association. On the recommendation of the Committee on Scholarships, this award is presented to the member of the fourth-year class who is deemed to have best advanced the standing of the College of Veterinary Medicine campus by special extracurricular contributions.

The Wild Bird Research and Rehabilitation Award. This award, from a University endowment by the same name, is to be given to a senior veterinary student who has demonstrated concern for the rehabilitation of wild birds or who has been involved in research relative to wild bird treatment and rehabilitation. Nomination is made by the director of the Teaching Hospital and is based upon recommendations of concerned faculty.

Requirements for Graduation

The prescribed four-year curriculum leading to the degree of Doctor of Veterinary Medicine (D.V.M.) is summarized in the section below. To receive this degree, candidates must satisfy all the entrance requirements (pp. 8–11), successfully complete the courses named in the curriculum below, have paid all fees due, have spent at least one year in residence, and be recommended for graduation by the college faculty

The academic year, divided into two terms, begins in September and ends in May. Under consideration is a proposal to initiate summer academic clinics for the period between the end of the normal third year and beginning of the fourth year of classes. Students would be given appropriate vacation periods (free blocks) at other times to compensate generally for time spent in clinical study during the summer period. At the conclusion of each term the college faculty reviews the records and conduct of students. Students whose grades are not satisfactory may be denied permission to register or graduate or may be assigned varying degrees of academic warning or probation.

The Curriculum

The college has a core-elective curriculum. A summary of the core curriculum is shown below.

The abbreviation "Req." indicates that a course, or its equivalent, is required for graduation, but that no formal credit is given for the course. Courses marked "S" are offered on an S-U basis only.

First Year

Fall Term	*Credits*
500 Gross Anatomy	5
502 Developmental Anatomy and Cytology	3
512 Veterinary Medical Orientation	S1
525 Veterinary Physiology I	4
545 Principles of Epidemiology	2
568 Veterinary Medical Orientation	S1
581 Basic Nutrition	2
	18

Spring Term	
501 Gross Anatomy	5
503 Histology and Organology	3
504 Neuroanatomy	2
526 Veterinary Physiology II	V4
569 Veterinary Medical Orientation	S1
	15

Second Year

Fall Term	*Credits*
510 Animal Parasitology	2
511 Diagnostic Parasitology	2
515 Veterinary Immunology	2
516 Veterinary Bacteriology and Mycology	3
527 Veterinary Physiology III	V4
535 Veterinary Pathology I	4
560 Clinical Methods	2
	19

Spring Term	
517 Veterinary Virology	2
518 Infectious and Zoonotic Diseases	3
528 Basic Pharmacology	4
536 Veterinary Pathology II	5
555 Avian Diseases	2
561 Obstetrics and Reproductive Diseases	3
579 General Medicine	2
	21

Third Year

Fall Term	*Credits*
505 Applied Anatomy	1
529 Clinical Pharmacology	2
539 Introduction to Laboratory Animal Medicine	1
546 Clinical Orientation	1
562 Obstetrics and Reproductive Diseases	3
563 Large Animal Medicine	4
567 Clinical Nutrition	2
571 Clinical Pathology	2
583 Small Animal Medicine and Surgery	3
587 General Surgery	3
	22

Spring Term	
506 Applied Anatomy	1
520 Preventive Medicine in Animal Health Management	2
564 Large Animal Medicine	4
565 Large Animal Surgery	3
566 Radiology	2
582 Large Animal Surgical Techniques	1
584 Small Animal Medicine and Surgery	8
586 Small Animal Surgical Exercises	2
	23

Fourth Year

Required	*Credits*
540 Pathology Service	2
572 Senior Seminar	Req.
574 Large Animal Surgery Service	4
575 Ambulatory Medicine Service	4
578 Anesthesiology Service	2
580 Radiology Service	2
589 Small Animal Medicine Service	4
591 Small Animal Surgery Service	4
593 Ophthalmology Service	2
594 Large Animal Medicine Service	2
598 Dermatology Service	2

Elective	
540 Pathology Service	V4
547 Practice Management	2
570 Theriogenology	4
574 Large Animal Surgery Service	V4
575 Ambulatory Medicine Service	V4
578 Anesthesiology Service	V4
580 Radiology Service	V4
589 Small Animal Medicine Service	V4
591 Small Animal Surgery Service	V4
593 Ophthalmology Service	V4
594 Large Animal Medicine Service	V4
596 Opportunities in Veterinary Medicine	V4
598 Dermatology Service	V4

Students must take a total of 32 credits of course work over a thirty-six-week period.

Honor Societies

There are three honor societies for which students of the College of Veterinary Medicine are eligible.

Phi Zeta. Founded in 1925 by the students of the New York State Veterinary College at Cornell University, Phi Zeta strives for the constant advancement of the veterinary profession, higher educational requirements, and superior scholarship. The object of the society is to recognize and promote scholarship and research pertaining to the welfare and diseases of animals.

Sigma XI. Any student or research staff member is eligible for membership in Sigma Xi, the Scientific Research Society of North America. It is the responsibility of the Admissions Committee of Sigma Xi to select for membership those individuals whose research aptitude or achievement deserves special recognition.

Phi Kappa Phi. The society of Phi Kappa Phi was founded in 1897 and soon became a national organization. Its primary objective is to recognize and encourage superior scholarship in all fields of study. Good character is essential for those elected to membership.

Legal Requirements to Practice

Before graduates can practice veterinary medicine in the United States, they must obtain a license from the state or states in which they locate their practices. This license is generally issued by the department of education or the department of agriculture of the state on the basis of an examination by a veterinary licensing board. Some states issue licenses without examination, based upon reciprocity, when the applicant has been licensed in other states.

In New York the licensing agency is the State Education Department. All inquiries should be addressed to the Secretary of the State Board of Examiners, 99 Washington Avenue, Albany, New York 12210. Application for the examination must be filed at least sixty days before the scheduled date and must be accompanied by a fee. Other details are available from the State Board of Examiners.

Health Services

Health services for students are centered in the Gannett Health Center, 10 Central Avenue, adjacent to Willard Straight Hall. Students are entitled to unlimited visits at the center. Appointments with individual doctors at the center should be made by calling 256-4082 or by visiting the center in person. (An acutely ill student will be seen promptly, even without an appointment.) Students are also entitled to most laboratory and X-ray examinations. Psychological services, gynecological care, and overnight and after-hours or emergency care are provided without additional cost. The cost of these services is covered by tuition. In addition, other services are available for a fee. Students may call 256-4082 for information.

The center is open twenty-four hours a day during the academic year; normal working hours are 8:30 a.m. to 11:30 a.m. and 1:00 p.m. to 4:30 p.m. Monday through Friday, and 8:30 a.m. to noon Saturday.

If, in the opinion of the University authorities, the student's health makes it unwise to remain in the University, the student may be required to withdraw.

Student Accident and Sickness Insurance Plan

Cornell sponsors a health insurance plan underwritten by a private insurance company to supplement the services outlined above. This plan may be waived if the student has other health insurance or is willing to accept the financial risk of no insurance. Students are urged to carefully consider the comprehensive benefits available for a relatively modest fee before waiving the plan. The plan covers services not available on campus, such as hospital care and consultations. Further, it provides for expenses relating to illness or accidents outside Ithaca during the academic year and vacation periods. Families of students are eligible for coverage. Information about this insurance may be obtained by calling (607) 256-6363 or by visiting Gannett Health Center, where a representative of the insurance company has an office

Health Care Plan for Student Spouses

The University Health Services provides health care for student spouses on a prepaid or fee-for-service basis. The fee schedule and other information about this service is available at the front desk and in the Student Insurance Office.

Emergency Health Service

Students requiring after-hours or emergency care should call the health center at 256-5155 to receive instructions on the proper course of action to follow.

Services for the Handicapped

Cornell University is committed to assisting those handicapped students who have special needs. A brochure describing services for the handicapped student may be obtained by writing to the Office of Equal Opportunity, Cornell University, 233 Day Hall, Ithaca, New York 14853. Questions or requests for special assistance may also be directed to that office

Housing and Dining Facilities

University Housing

All applications for University housing should be made immediately upon provisional acceptance.

Cornell provides residential facilities on campus for about 6,000 students. These facilities are located in three areas that lie to the north, south, and west of the central campus. Detailed descriptions of various housing accommodations are found in the booklet

Living on Campus, which is mailed to candidates for admission upon notification of their acceptance to Cornell.

Students are not subject to a residence requirement and should note that acceptance to Cornell University does not guarantee the availability of on-campus accommodations.

An application form for on-campus housing will be enclosed with the notice of provisional acceptance from the Office of Admissions.

Information about available single-student housing and rental rates may be obtained from the Housing Assignment Office, Cornell University, 1142 Balch Hall, Ithaca, New York 14853.

Graduate Students

University housing in residence halls is available to single graduate students upon application to the Housing Assignment Office, Cornell University, 1142 Balch Hall, Ithaca, New York 14853.

Sage Hall provides housing for approximately 200 men and women. Situated in the center of the campus, it is convenient to all colleges. There is a cafeteria in the building. Schuyler House accommodates approximately 150 graduate men and women. It is located in a community residential area within walking distance of campus and downtown shopping areas. A third residence is a small apartment building, Thurston Court, housing twenty-one graduate students. It is located just north of the Fall Creek Gorge on Thurston Avenue.

Student Families

The University maintains apartment accommodations for approximately 420 students and their families. These are Cornell Quarters, Pleasant Grove Apartments, and Hasbrouck Apartments. All accommodations are unfurnished. Requests for further information and applications should be directed to the Family Housing Office, Building 40, Hasbrouck Apartments, Ithaca, New York 14850.

Off-Campus Housing

Information on housing that is currently available is posted on a board at the Off-Campus Housing Office, 103 Barnes Hall. Because changes of available accommodations occur daily, it is not practical to prepare lists. If possible, a student should plan to visit Ithaca well in advance of residence in order to obtain suitable quarters off campus.

Dining Services

Cornell Dining operates dining services in ten locations—Willard Straight Hall, Robert Purcell Union, Noyes Student Center, Balch Hall, Sage House, Hughes Hall, Noyes Lodge, Risley Hall, Martha's, and Red Bear Cafe. Another dining location is the Cafe Rhea, run by the School of Hotel Administration. These facilities are open to all students on a cash or credit basis, whether or not they live in University residence halls or subscribe to a specific dining plan.

The University has no formal dining requirements, allowing students the flexibility of eating when and where they choose.

For those students who want to subscribe to a dining plan, the following options are offered: the Co-op Dining Program, prepaid each semester, allows students to eat all they want during specified times at six Co-op Dining Centers (Willard Straight Hall, Noyes Student Center, Robert Purcell Union, Risley Hall, Sage House, and Balch Hall) at a food-cost savings. Noyes Lodge is also open to co-op participants for bonus passes and seven-saver points. Seven-saver is a prepaid point plan valid in all co-op units and not restricted to a particular meal period.

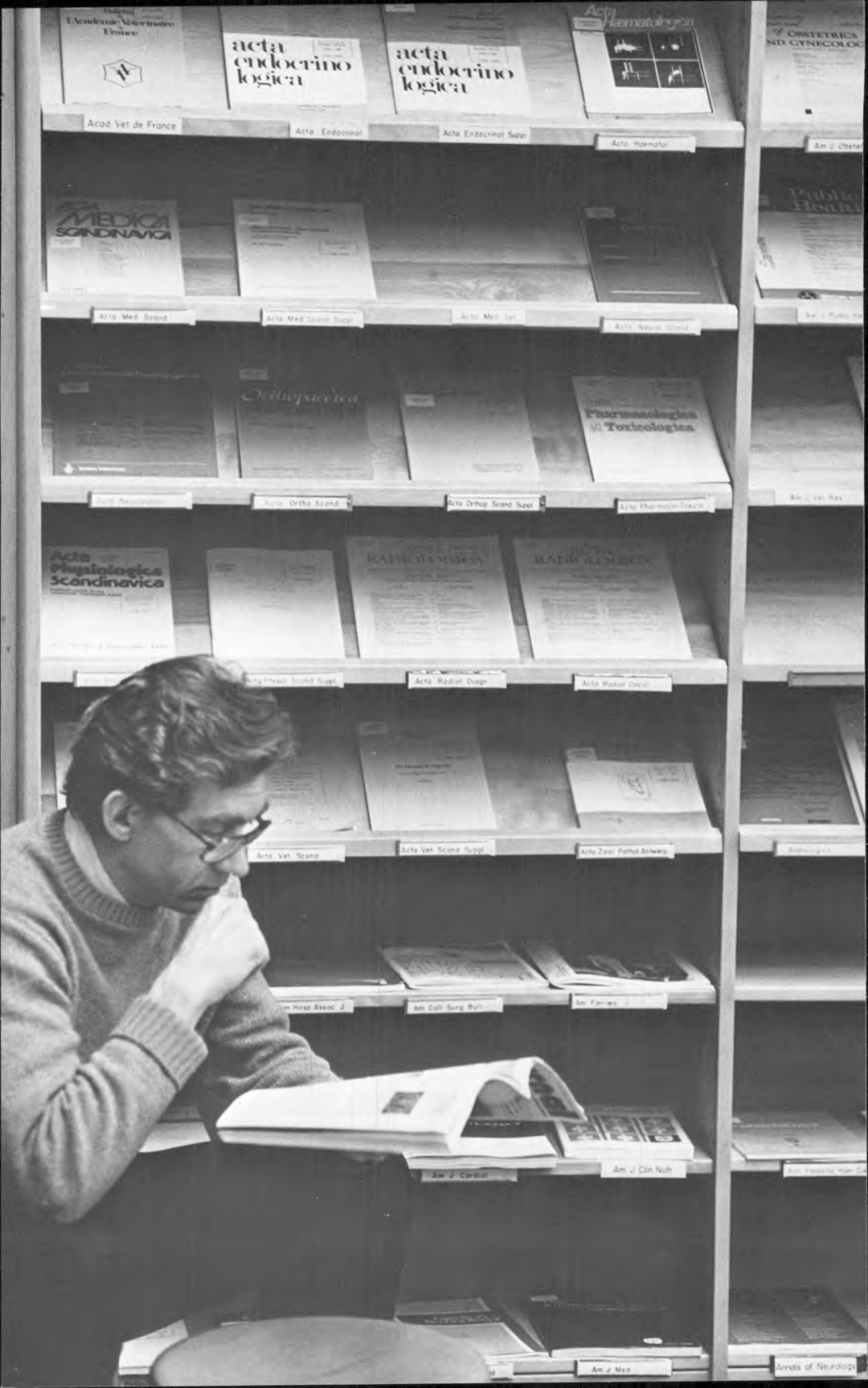
Students participate in any one of twelve co-op plans. Students may choose from a wide selection of daily entrees, fresh fruits, vegetables, and salads, and there are unlimited seconds. Co-op 2000, located in Balch Hall, is a program administered by a registered dietitian who is available to counsel individuals with special interest in a nutritious diet. Additional information may be obtained from Cornell Dining, 233 Day Hall.

Cornellcard, a credit card for those who do not want to pay cash for each meal or be on the Co-op Dining Plan, is honored by Cornell Dining. The Cornellcard program is administered by the Bursar's Office. Information is available from the Bursar's Office, Cornell University, 260 Day Hall.

Cornell Dining also operates a grocery store on campus (the Pick-Up in Noyes Lodge) and vending machine areas that offer hot and cold food and drinks in Martha Van Rensselaer and Warren Halls and in the veterinary college. In these areas radar ovens are provided for convenience in heating food. In addition, Cornell Dining has a catering department which is available to members of the Cornell Community.

Conduct of Students

The standards of conduct expected of a Cornell veterinary student are defined by various University regulations and the College of Veterinary Medicine Student Honor Code. The code was established in recognition of the importance of ethics, honor, and integrity in an individual's training for the profession. It places the responsibility for ethical and professional conduct upon the students and is implemented by a Student Administrative Board, which is granted initial jurisdiction by the faculty. A copy of the honor code is given at registration to veterinary, graduate, and undergraduate students taking courses at the college. It is each student's responsibility to become familiar with the contents of the code and to abide by it throughout his or her involvement with the college.


Acad Vet de France
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Acta Haematol
Acta Med Scand
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Acta Neurol Scand
Acta Ortho Scand
Acta Orthop Scand Suppl
Acta Pharmacol Toxicol
Acta Physiologica Scandinavica
Acta Radiol Diagn
Acta Radiol Oncol
Acta Vet Scand
Acta Vet Scand Suppl
Acta Zool Pathol Antverp
Am J Cardiol
Am J Clin Nutr
Annals of Neurology

Description of Courses

Under each department heading there are brief descriptions of the courses offered. Most of these courses are a part of the veterinary core curriculum; some are elective to veterinary students or are given primarily for graduate students or students of other colleges of the University.

Courses in other colleges available to all Cornell students are listed in *Courses of Study*.

Course Numbering System

500 series: D.V.M. core curriculum courses
600 series: elective courses for D.V.M. and other students
700 series: graduate-level courses

Anatomy

Professors H. E. Evans, chairman; J. F. Cummings, A. deLahunta, W. O. Sack. Associate Professor D. M. Noden.

The first-year veterinary student is faced with a new vocabulary, a daily opportunity to see what is going on in the clinics and postmortem, and a full class schedule. The Department of Anatomy tries to acclimate the students to this new regime by advising them how to budget their time and how to use their textbooks, microscopes, and instruments, and by supervising their dissections. The manuals and textbooks written by the faculty are designed for the courses offered.

The major objective of the department is to help students learn the anatomical facts and vocabulary necessary for the comprehension of journal literature and clinical courses. Secondary objectives are to produce new anatomical information, train future anatomists, and help other departments, programs, or practitioners as necessary. Facilities and materials are available for graduate research in neuroanatomy and clinical neurology; gross, microscopic, and ultrastructural anatomy; and developmental, comparative, and applied anatomy.

The interests and experiences of the faculty members are diverse and allow them to counsel in a variety of areas.

500 Gross Anatomy First year, fall. 5 credits. Lecture, M 1:05. Laboratories, M 2:05–4:25, T R F 10:10–12:35. H. E. Evans, A. deLahunta, D. M. Noden, and assistants.
The structure of the typical mammal is studied by detailed systematic and regional dissection of the dog. The basic features of avian anatomy are studied by dissection of the chicken, and the anatomy of fish and laboratory animals is reviewed in appropriate species. The lectures (supplemented by demonstrations and films) consider the comparative and regional gross aspects of vertebrate organ systems, anatomical terminology, literature, techniques, and radiographic anatomy.

501 Gross Anatomy First year, spring. 5 credits. Prerequisite: Anatomy 500. Lecture, R 8. Laboratories, M W R 2:05–4:25, T 10.10–12:35. W. O. Sack and assistants.
Regional anatomy of the horse, cow, sheep, and pig is studied by dissection. Special attention is given to the anatomy of physiological processes and clinical procedures, and the veterinary public health inspection of food animals.

502 Developmental Anatomy and Cytology First year, fall. 3 credits. Prerequisites: course work equivalent to that required for admission to the veterinary college and completion of, or concurrent registration in, Anatomy 500 or 700. Lecture, M 8. Laboratories, W 10:10–12:35, R 2:05–4:25. Twelve weeks, D. M. Noden; two weeks, J. F. Cummings and assistants.
The study of development is designed to provide a foundation for the understanding of definitive anatomy and the formation of anomalies. The latter part of the course is devoted to cytology and histology, illustrated with material from the domestic animals.

503 Histology and Organology First year, spring. 3 credits. Prerequisites: Anatomy 502 and completion of, or concurrent registration in, Anatomy 501 or 700. Lecture, T 9:05. Laboratories, T 2:05–4:25, F 10:10–12:35. J. F. Cummings and assistants.
The microscopic structure of the tissues and organs of domestic animals is studied. Illustrated lectures are presented to relate structure to function, correlate microscopic and gross anatomy, and establish a foundation for subsequent studies in physiology and pathology. Slides of tissues and organs are provided. Lecture-laboratory notes can be purchased at cost from the department.

504 Neuroanatomy First year, spring. 2 credits. M 10:10–12:35, T 8. A. deLahunta.
The nervous system of domestic animals is studied by functional systems. This is a vertically integrated course that includes the diagnosis of diseases of the nervous system. Clinical cases with pertinent lesions are demonstrated with each system.

505–506 Applied Anatomy Third year. 505, fall; 506, spring. 1 credit each term. 505: laboratory T W or R 2:05–4:25. 506: laboratory, T W or R 2:05–4:25. A. deLahunta.
An opportunity for practice in the recognition of the anatomical features that are essential to diagnostic, surgical, obstetrical, and postmortem procedures. The approach is topographical, comparative, and clinical. The emphasis is on the study of living animals, supplemented by dissections, serial transections, models, and radiographs.

600 Special Projects in Anatomy Fall and spring. By permission of instructor only. Hours to be arranged (1 credit per 2½-hour period).

600 S Skeleton Preparation Hours and credit to be arranged. H. E. Evans, R. Dembinski.
An opportunity to prepare a skeleton under supervision.

601 Advanced Anatomy Fall and spring. Hours and credit to be arranged. Prerequisites: Anatomy 500 and 502 or similar preparation in comparative anatomy, embryology, and histology.
A. deLahunta, H. E. Evans, W. O. Sack, J. F. Cummings, D. M. Noden.
An opportunity for advanced study under the personal direction of a faculty member.

602 Advanced Clinical Neurology Spring. 1 credit. Prerequisite: first three semesters of veterinary curriculum. W 8. A. deLahunta.
Correlation of anatomy, physiology, and pathology in the diagnosis and treatment of diseases of the nervous system and an understanding of their pathogenesis. Case demonstrations will be emphasized.

Pharmacology

Professor G. W. G. Sharp, chairman. Associate Professor W. S. Schwark; Assistant Professors D. C. Ferguson, C. M. S. Fewtrell, R. E. Oswald, G. A. Weiland; others to be appointed.

Specific information about faculty, staff, and courses may be obtained by contacting the department.

528 Pharmacology Second year, spring. 4 credits. Prerequisites: Anatomy 500, 501, 502, 503, 504; Physiology 525, 526, 527; Pathology 535 or consent of the instructors. Lecture, M R 8, T 1:05. Laboratory, T 2:05–4:25. Pharmacology faculty.
Topics covered will include physiological disposition of drugs and poisons, drug receptor interactions, cellular pharmacology, action of drugs affecting the nervous system, and corticosteroid hormones. A number of toxicological topics will be covered in the laboratory session.

529 Clinical Pharmacology Third year, fall. 2 credits. Prerequisite: Pharmacology 528 or consent of the instructors. Lectures, T R 1:05. W. S. Schwark and other faculty.
Topics covered will include chemotherapy, action of drugs affecting the heart, gastrointestinal tract, skin, and the respiratory, endocrine, and urinary systems.

621 Toxicology Second, third, or fourth year, spring. 1 credit. S-U grades only. F 2:05.
W. S. Schwark and other faculty. Specific information about this course can be obtained from the department.
Basic and clinical aspects of the more common poisonings that affect domestic animals will be considered. Emphasis will be given to heavy-metal poisoning; chelation phenomena; selected organic poisonings, including pesticides, herbicides, and rodenticides; and forensic considerations.

622 Special Projects in Pharmacology Fall, spring, or summer. By permission of instructor only. Hours to be arranged. Pharmacology faculty.

721 Research Fall or spring. Graduate students only. Hours to be arranged. Pharmacology faculty.

724 Physiological Disposition of Drugs and Poisons Fall. Graduate students. 1 to 3 credits. Lectures, M R 8, T 1:05. Laboratory, T 2:05–4:25.

Physiology

Professors R. H. Wasserman, chairman, E. N. Bergman, A. P. Casarett, A. Dobson, E. L. Gasteiger, W. Hansel, T. R. Houpt, F. Kallfelz, F. W. Lengemann, A. F. Sellers, D. N. Tapper, J. F. Wootton; Associate Professors K. Beyenbach, R. A. Corradino, K. Houpt; Assistant Professors J. Fortune, E. Loew; Senior Research Associates P. W. Concannon, C. S. Fullmer, R. A. Wentworth; Research Associate R. Milvae; Postdoctoral Associate J. Chandler.

Specific information about faculty, staff, and courses may be obtained by contacting the department.

The department is well equipped for advanced work in the applications of physical and biochemical methods to problems of animal and biological research. The following research areas are emphasized: (a) reproductive physiology, (b) endocrinology, (c) cellular physiology, (d) neurophysiology, (e) gastrointestinal physiology, (f) metabolism, (g) behavioral physiology, (h) renal physiology, and (i) vision.

The Department of Physiology is the nucleus of the Section of Physiology of the Division of Biological Sciences. The primary responsibility of this section is the teaching and training of undergraduate and graduate students of the University in the physiological disciplines, an activity in which the department has been involved for the past several years. The section includes joint appointees from other departments of the college and of the University, expands the role of the college in University-wide educational activities, and provides a means of additional interaction for other colleges of the University and the College of Veterinary Medicine.

Bio S 214 Biological Basis of Sex Differences (also Women's Studies 214) Spring. 3 credits. Prerequisite: one year of introductory biology. S-U grades optional. Lectures, T R 8:35–9:55. Occasional discussions to be arranged. J. E. Fortune.
The structural and functional differences between the sexes are examined. Emphasis is placed on mechanisms of mammalian reproduction; where possible, special attention is given to studies of humans. Current evidence on the effects of gender on nonreproductive aspects of life (behavior, mental and physical capabilities) is discussed. The course is intended to provide students with a basic knowledge of reproductive endocrinology and with a basis for objective evaluation of sex differences in relation to contemporary life.

Bio S 274 The Vertebrates Spring. 5 credits Primarily for sophomores; this course is a prerequisite for many advanced courses in vertebrate biology, anatomy, and physiology. Laboratories limited to 21 students each section Prerequisite one year of introductory biology for majors. Fee, $10. Lectures, T R 10:10. Laboratories, M W 1:25–5, M W 7–10 p.m., or T R 1:25–5. Staff.
An introduction to the evolution, classification, comparative anatomy, life history, and behavior of vertebrate animals. Laboratory dissection and demonstration are concerned with structure, classification, systematics, biology of species, and studies of selected aspects of vertebrate life.

Bio S 313 Histology: The Biology of the Tissues Fall. 4 credits. Prerequisite: one year of introductory biology; a background in vertebrate anatomy and organic chemistry or biochemistry strongly recommended. Lectures, T R 11:15. Laboratories, T R 2–4:25. W. A. Wimsatt.
Provides the student with a basis for understanding the microscopic, fine structural, and functional organization of vertebrates as well as the methods of analytic morphology at the cell and tissue levels. The dynamic interrelations of structure, composition, and function in cells and tissues are stressed.

Bio S 315 Ecological Animal Physiology, Lectures Fall. 3 credits. Prerequisite: one year of introductory biology for majors. Offered alternate years. M W F 10:10. W. N. McFarland.
An introductory course for students interested in ecology and physiology. The characteristics of the physical environment that are important to organisms are discussed, and the physiological, behavioral, and morphological adaptations of vertebrate and invertebrate animals to environment are analyzed

Bio S 316 Cellular Physiology Spring. 4 credits Limited to 100 students (laboratory limited to 50 students) with preference given to students concentrating in animal physiology and anatomy. Each laboratory section limited to 25 students Prerequisite: concurrent or previous enrollment in Biological Sciences 330 or 331. Lectures, M W F 9:05. Laboratory, M or T 1:25–5. A. Quaroni, R. Corradino, E. Loew.
Lectures introduce students to the most current information on the ways cells function and regulate themselves and neighboring cells and on what molecules are involved in these regulatory processes. Laboratories provide an introduction to cell and organ culture and immunological techniques used to study cell structure and function in vivo and in vitro. Experiments performed in the laboratory are closely related to subjects covered in the lectures, of which they provide practical experience.

[Bio S 317 Ecological Animal Physiology, Laboratory Fall. 1 credit. Limited to 12 students. Prerequisite concurrent enrollment in Biological Sciences 315. Offered alternate years Not offered 1983. Laboratory, W or R 1:25–4:25. W. N. McFarland.
Exercises involve measurements of important environmental factors in local habitats, laboratory experiments to familiarize students with the use of physiological methods, and an individual student research project dealing with specific adaptations of organisms to environment.]

346 Introductory Animal Physiology, Lectures (also Biological Sciences 311) Fall. 3 credits. Prerequisites: one year of college biology, chemistry, and mathematics. Lectures, M W F 11:15. Discussion to be arranged. Three preliminary examinations given at 7:30 p.m. K. Houpt.
A general course in vertebrate physiology emphasizing the basic characteristics of the circulatory, nervous, pulmonary, renal, and gastrointestinal systems; energy metabolism; endocrinology; and reproductive physiology. Neural and hormonal control of function is emphasized.

348 Introductory Animal Physiology, Laboratory (also Biological Sciences 319) Fall. 2 credits. Limited to 80 students, with preference given to students concentrating in animal physiology and anatomy. Laboratories limited to 20 students each section. Prerequisite: concurrent enrollment in Veterinary Medicine 346 (also Biological Sciences 311) or permission of instructor based on previous meritorious performance in another introductory physiology course. S-U grades optional. Laboratories, M T W or R 1:25–5 R. A. Corradino, P. W. Concannon.
A series of student-run experiments exposing the objectives, ethics, techniques, and analysis of procedures in systems physiology, conducted in vivo and in vitro with mammals. Reports describing the experiments and requiring extensive outside work are required. Grading is based on evaluation of reports and performance during laboratory experiments.

[Bio S 351 Biological Rhythms with a Period of One Day to One Year Fall. 1 credit Prerequisites One year of introductory biology and either Mathematics 106, 111, or 113. Not offered 1983. Lecture, R 12:20. A. van Tienhoven.
Theoretical and practical aspects of circadian and circennial rhythms will be considered. Selected topics such as the biological clock of plants, insects, and vertebrates will be presented. Light will be considered as a stimulus and as an entraining agent. The role of rhythms of migration and reproduction will be emphasized.]

Bio S 410 Seminar in Anatomy and Physiology Fall or spring. 1 credit. May be repeated for credit only once. Limited to upperclass students. S-U grades only. Hours and topics to be arranged. Organizational meeting first T of each semester at 7:30 p.m. in Behrman Biology Center (Stimson G20). Staff (coordinator—K. Houpt, fall 1983; A. Bensadoun, spring 1984)

Bio S 412 Special Histology: The Biology of the Organs Spring. 4 credits. Limited to 12 students. Prerequisite: Biological Sciences 313 or written permission of instructor. Lectures, W F 9:05. Laboratories, W F 2–4:25. W. A. Wimsatt.
A continuation of Biological Sciences 313. The microscopic and ultrastructural organization of the principal vertebrate organ systems are studied in relation to their development, functional interaction, and special physiological roles. Courses 313 and 412 together present the fundamental aspects of the microscopic and submicroscopic organization of the vertebrate. The organization of the course involves student participation in lecture-seminars, and the prosecution of independent project work supplementary to the regular work of the laboratory. The latter enables students to gain practical experience with histological and histochemical preparatory techniques.

[Bio S 416 General Animal Physiology: A Quantitative Approach, Lectures Spring. 3 credits. Prerequisites: one year of college biology and physics. S-U grades optional. Not offered 1984. Lectures, M W F 10:10. H. C. Howland.
The principles of animal physiology are developed through consideration of the functioning of cells, tissues, and organs. Specific topics discussed include respiration, metabolism, circulation, excretion, body mechanics, muscle contraction, nerve action, sensory reception, and central nervous system function. A quantitative, systems-theoretical approach is emphasized.]

Bio S 418 General Animal Physiology, Laboratory Spring. 2 credits. Prerequisite: concurrent enrollment in Biological Sciences 416 or equivalent. Lectures, one hour to be arranged. Laboratory, M T or R 1:25–4:25. A. Dobson.
Students are introduced to basic techniques utilized in the study of the physiology of animal tissues. Experiments cover topics dealing with respiration, properties of muscle, circulation, activity of nerves, and osmotic phenomena.

[Bio S 452 Comparative Physiology of Reproduction of Vertebrates, Lectures (also Animal Sciences 452) Spring. 3 credits. Prerequisite: Animal Sciences 427 or permission of instructor. Not offered 1984. Lectures, M W F 1:25. A. van Tienhoven.
Sex and its manifestations. Neuroendocrinology, endocrinology of reproduction, sexual behavior, gametogenesis, fertilization, embryonic development, care of the zygote, environment and reproduction, and immunological aspects of reproduction.]

[Bio S 454 Comparative Physiology of Reproduction of Vertebrates, Laboratory (also Animal Sciences 454) Spring. 2 credits. Prerequisite: concurrent or previous enrollment in Biological Sciences 452 or permission of instructor. Not offered 1984. Laboratory hours to be arranged; organizational meeting first F of semester at 2:30. A. van Tienhoven.
The laboratory provides students with an opportunity to design and execute independently experiments with limited objectives.]

Bio S 458 Mammalian Physiology Spring. 6 credits. Enrollment limited. Graduate student auditors allowed in lectures. Prerequisite: Veterinary Medicine 346 or equivalent with written permission of instructor. Lectures, M W F 8. Laboratory, M or W 1:25–4:25; 4 additional hours to be arranged. K. W. Beyenbach and staff
Selected topics in mammalian physiology are discussed in the lecture and concurrently studied in the laboratory. Topics are selected from the following: physiology of membranes and epithelia; nerve and muscle; heart and circulation; autonomic, somatic, and sensory nervous systems, respiration; digestion; salt and water balance; acid-base balance; and endocrine regulation.

Bio S 499 (formerly Bio S 419) Undergraduate Research in Biology Fall or spring. Variable credit. Prerequisite: written permission from the staff member who will supervise the work and assign the grade. S-U grades optional. Any faculty member in the Division of Biological Sciences may act as a supervisor. Faculty supervisors outside the division are acceptable only if a faculty member of the division agrees to take full responsibility for the quality of the work. *This course is divided into multiple sections as printed in the* Course and Time Roster *and its supplement.* Students must register under supervisor's assigned section number, or Section 01 if supervisor was not assigned a section number. Hours to be arranged. Staff.
Practice in planning, conducting, and reporting independent laboratory and library research programs. Research credits may *not* be used in completion of the following concentration areas: animal physiology and anatomy; biochemistry; botany; cell biology; and ecology, systematics, and evolution. No more than 4 credits of research may be used in completion of the following concentration areas: genetics and development, neurobiology and behavior.

525 Veterinary Physiology I First year, fall. 4 credits. Lectures, M T W F 9:05, R 8.
Part A. Cell Physiology. R. A. Corradino, R. H. Wasserman, R. R. Minor, F. A. Kallfelz.
An introduction to animal cellular physiology with emphasis on subcellular structure and function, the extracellular matrix, and the mineralization process. Related pathologic conditions will be discussed.
Part B. Neurophysiology. D. N. Tapper.
An introduction to the physiology of locomotion and motor control and the neural basis of pain sensation and its modulation. The emphasis is at the system level with reference to the whole animal. Fundamental

processes of nerves, muscles, and synapses are also introduced. Reflex activity associated with somatic and autonomic function are considered from the perspective of clinical evaluation and therapeutic intervention.

526 Veterinary Physiology II First year, spring 4 credits. Prerequisites: Veterinary Medicine 525, Anatomy 500 and 501, or Anatomy 700 and Biological Sciences 330–331. Lectures, M F 9:05, T 1:05. Laboratory, W or R 9:05–12:35. E. N. Bergman and staff.
This course, together with Physiology 527, is a study of systemic physiology of the common domestic animals. Lectures and laboratory exercises on living animals emphasize bodily function as a foundation for pathology, surgery, veterinary clinical medicine, and diagnosis of disease. Topics in this course include blood, cardiovascular, renal, respiration, acid-base relations, and environmental physiology.

527 Veterinary Physiology III Second year, fall 4 credits. Prerequisites: Veterinary Medicine 525 and 526. Lectures, M W F 1:05. Laboratory section 1, W 9:05–12:35; section 2, R 1:05–4:25. T. R. Houpt and others.
A continuation of organ and systems physiology of domestic animals that includes simple stomached and ruminant digestive systems, hepatic function, metabolic physiology, endocrinology, and reproduction, with emphasis on medically relevant aspects.

Bio S 619 Lipids (also Nutritional Sciences 602) Fall. 2 credits. Lectures, T R 11:15
A. Bensadoun.
Advanced course on biochemical, metabolic, and nutritional aspects of lipids. Emphasis is placed on critical analysis of current topics on lipid methodology, lipid absorption; lipoprotein secretion, structure, and catabolism; mechanism of hormonal regulation of lipolysis and fatty acid synthesis; and cholesterol metabolism and atherosclerosis.

626 Veterinary Animal Behavior Spring for all veterinary students. 2 credits. Limited to veterinary and graduate students. M 1:05, F 2:05–4:25. K. A. Houpt
The behavior of animals of interest to veterinarians. Dogs, cats, horses, and cattle will be studied in depth. Other domestic animals such as sheep, goats, rabbits, pet rodents, and birds will be considered in less detail. A clinical approach will be taken; the students are expected to learn normal behavior and its physiological basis in order to treat abnormal or inappropriate behavior in pet and farm animals. The opportunity to observe cases will be given.

627 Acid-Base Relations Fall or spring. 1 credit. Prerequisite: Physiology 526 or permission of instructor. Elective course for all veterinary students. A. Dobson.
The course uses a self-instruction program to promote an understanding of the basis, interpretation, and technique of measuring acid-base status

628 Graduate Research in Animal Physiology (also Biological Sciences 719) Fall or spring Variable credit. Prerequisite: written permission of section chairperson and staff member who will supervise the work and assign the grade. S-U grades optional. Hours to be arranged. Staff.
Similar to Biological Sciences 499 but intended for graduate students who are working with faculty members on an individual basis.

652 Applied Electrophysiology (also Biological Sciences 617) Fall. 2 credits. Lectures, W 8. Laboratory, R 2–4:25. Open to seniors, graduate students, and second-, third-, and fourth-year veterinary students. Prerequisites: physics and two years of college biology or permission of instructor. Hours to be arranged. E. L. Gasteiger
Theory and practice of electrophysiological techniques currently used for the nervous and muscular systems in normal and diseased states. Topics include electroencephalography, electromyography, electroretinography, and evoked potentials.

Bio S 711–718 Special Topics in Physiology Fall or spring. 1 or 2 credits for each topic. May be repeated for credit. Each topic limited to 20 students, with preference given to graduate students in physiology.
Lectures, laboratories, discussions, and seminars on specialized topics.

Note: Not all courses are given each year.

Fall 1983 topics are:

Bio S 713 Farm Animal Behavior (also Biological Sciences 410) 1 credit. Seminar, one hour each week to be arranged. K. A. Houpt.

Bio S 715 Synovial Physiology: The Function of Joints 2 credits. Lecture, 2 hours each week to be arranged. G. Lust.
Discussion of the biochemical constituents of joint tissue with particular reference to arthritis.

Bio S 717 Evolution of Color Vision 2 credits. Seminar, 1½ hours each week to be arranged. E. R. Loew

Spring 1984 topics are:

Bio S 712 History of Physiology: The Digestive Tract (also Biological Sciences 410) 1 credit Seminar to be arranged. T. R. Houpt.

Bio S 714 Plasma Lipoproteins 1 credit Seminar, one hour each week to be arranged. A. Bensadoun.

[Bio S 716 Sterotaxic Techniques to Study Neuroendocrine Relationships 2 credits. Not offered 1983–84. Laboratory, 4–5 hours each week for 6 weeks to be arranged. A. van Tienhoven]

720 Special Problems in Physiology Fall or spring. Registration by permission. Hours to be arranged.
Laboratory work, conferences, collateral readings, and reports, adapted to the needs of students.

726 Physiology Spring. 3 credits. For graduate students. Prerequisites: Biochemistry 525, Anatomy 500 and 501, or Anatomy 700. M F 9:05, T 1:05. E. N. Bergman and others.
Lectures and demonstrations on blood, cardiovascular, respiratory, renal, acid-base relations, and environmental physiology.

727 Physiology Fall. 3 credits. Prerequisite: Veterinary Medicine 726. T. R. Houpt and others.
This course consists of the lectures only of Veterinary Medicine 527 and is for graduate students. The subjects included are simple stomached and ruminant digestive function, liver and metabolic physiology, endocrinology, and reproduction of domestic animals with some emphasis on medical aspects.

750 Radioisotopes in Biological Research (also Biological Sciences 616) Fall. 4 credits. Prerequisites: courses in animal or plant physiology or permission of instructor. Lectures, T R 11:15. Laboratory, T 1:25–5. F. W. Lengemann.
Lectures and laboratories will deal with the radioisotope as a tool in biological research. Among the topics considered will be the utilization and detection of beta-emitting isotopes, gamma spectrometry, Cerenkov counting, neutron activation, autoradiography, and whole body counting. Particular emphasis is placed on liquid scintillation counting, double label experiments, and on ^{14}C and ^{3}H as metabolic tracers. Experiments are designed to present basic principles while utilizing plants or animals or both as the subject material.

[752 Biological Membranes and Nutrient Transfer (also Biological Sciences 618) Spring. 2 credits. Prerequisites: courses in animal or plant physiology, quantitative and organic chemistry, and physics, and permission of instructor. Recommended: courses in cellular physiology and elementary physical chemistry. Not offered 1984. Lectures, T R 11:15. R. H. Wasserman.
An introduction to elementary biophysical properties of biological membranes; theoretical aspects of permeability and transport; and mechanism of transfer of inorganic and organic substances primarily across epithelial membranes.]

753 Mammalian Neurophysiology (also Biological Sciences 450) Spring. 3 credits. Prerequisites: two years of college biology. Recommended: courses in biochemistry and physics. Lecture-discussion, T 10:10. Laboratories, R 1:25–4:25. Additional hours to be arranged. E. L. Gasteiger.
The anatomy and physiology of the mammalian nervous system will be examined through classical and modern laboratory studies. Sensory, central integrative, and motor functions will be explored primarily by electrophysiologically recording spontaneous and evoked unit and field potentials. Where appropriate, behavioral, pharmacological, and histological methods will be used.

758 Molecular Mechanisms of Hormone Action (also Biological Sciences 658) Spring. 2 credits. Prerequisite: permission of instructor. Offered alternate years. Lectures, T R 10:10. R. A. Corradino.
An advanced course developed from the current literature on endocrine mechanisms.

[759 Nutrition and Physiology of Mineral Elements (also Biological Sciences 615 and 659) Fall. 2 credits. Prerequisites: courses in basic physiology, intermediate biochemistry, and general nutrition. Not offered 1983. Lectures, T R 10:10. R. H. Wasserman, R. Schwartz, D. R. VanCampen.
Lectures on nutritional aspects, and physiological, biochemical, and hormonal relationships of the prominent macroelements and microelements, with emphasis on recent developments. Included will be information on methodologies of mineral research and the essentiality, requirements, transport, function, homeostasis, interrelationships, and toxicity of various mineral elements.]

Animal Reproduction and Development (Animal Sciences 220) Fall. 4 credits. Laboratories limited to 36 students each section. Prerequisite: one year of college biology or equivalent. Lectures, T R 9:05. Laboratory and demonstration, M T W R 2–4:25, T 10:10–12:35, or F 12:20–2:45. R. H. Foote.
An introduction to the comparative anatomy and physiology of reproduction of farm animals. The life cycle from fertilization through development and growth to sexual maturity will be studied, with emphasis on physiological mechanisms involved, relevant genetic control, and the application to fertility regulation of animal and human populations. An autotutorial laboratory is available for independent study to prepare for laboratory experiments.

Fundamentals of Endocrinology (Animal Science 427) Fall. 3 credits. Prerequisite: human or veterinary physiology or permission of instructor. Lectures, M W F 9:05. W. R. Butler.
The physiology of the endocrine glands and the roles played by each hormone in the regulation of normal body processes. Endocrine regulation of growth, metabolism, and reproduction is emphasized. Examples are selected from domestic species and humans.

Fundamentals of Endocrinology, Laboratory (Animal Sciences 428) Fall. 2 credits. Each lab limited to 30 students. Prerequisite: concurrent registration in Animal Sciences 427 or permission of instructor. Laboratory, T or R 1:24–4:25. W. R. Butler.
Laboratory exercises are designed to demonstrate hormonal mechanisms for each of the major endocrine glands. Laboratory techniques include animal surgery, blood collection, and hormone radioimmunoassay.

[Comparative Physiology of Reproduction of Vertebrates, Lectures (Animal Sciences 452) Spring. 2 credits. Prerequisite: Animal Sciences 427 or permission of instructor. Not offered 1984. Lectures, W F 1:25. A. van Tienhoven.
Sex and its manifestations. Neuroendocrinology,

endocrinology of reproduction, sexual behavior, gametogenesis, fertilization, embryonic development, oviparity, viviparity, environment and reproduction, and nutrition and reproduction.]

[Comparative Physiology of Reproduction of Vertebrates, Laboratory (Animal Sciences 454) Spring. 2 credits. Prerequisite: concurrent or previous enrollment in Animal Sciences 428 or permission of instructor. Not offered 1984. Laboratory, hours to be arranged; organizational meeting F 2:30 first week of semester. A. van Tienhoven.
The laboratory provides students with an opportunity to design and execute independently experiments with limited objectives.]

Pathology

Professors Robert M. Lewis, chairman; J. King, L. Krook, C. Rickard; Associate Professors G. L. Cockerell, D. H. Lein, R. R. Minor, D. D. Myers, F. W. Quimby, D. O. Slauson; Assistant Professors J. Blue, W. L. Castleman, B. J. Cooper, T. French, D. Schlafer, B. Summers; Professors Emeriti J. Bentinck-Smith, C. I. Boyer, Jr., P. Olafson; Adjunct Professors W. J. Dodds, J. Nosanchuck, M. Posso; Adjunct Assistant Professors D. W. Brown, G. V. Lesser, H. T. Nguyen; Instructor R. Seiler; Senior Residents L. Mezza, K. Walsh; Interns and Residents G. Bottomley (San Diego Zoo), G. Freden, K. McColl, C. Meschter, J. Schuh, B. Von Beust; Postdoctoral Fellows W. Corapi, S. Durham, P. Losco, A. Martel, L. Munson, S. Neuenschwander, S. Shelly, J. Spitsbergen, D. Weinstock, J. Wilkinson; Veterinary Assistants D. Abbott, M. Boudreaux, G. Gibson, E. Graham, W. J. Mitchell, C. Mohr, L. Roth; Graduate Students L. Denholm, F. Leighton, B. Letwin.

The department's modern facilities provide ample opportunity for advanced work in necropsy and surgical pathology, immunopathology, nutritional pathology, laboratory animal pathology, laboratory diagnostic methods, and electron microscopy. The department maintains a necropsy service and tissue culture laboratories, and two electron microscope laboratories. These facilities provide an abundance of pathological material for teaching and research purposes. Clinical cases that have been adequately examined by clinical methods are available for necropsy study.

The following courses are given particularly for veterinary students. Courses in the 500 series are required. When there is room for them, properly prepared students of other colleges will be admitted, but permission to register must be obtained.

535 Veterinary Pathology I Second year, fall. 4 credits. Prerequisites: Anatomy 502 and 503 or equivalent histology courses. Non–veterinary medical students also must have permission of instructor. Lectures, T R 9:05. Laboratories, T R 10:10–12:35. D. O. Slauson.
A study of disease processes beginning at the cellular level and progressing to selected body systems. Cellular pathology, injury and death at the cellular and tissue level, derangements in body fluids and blood flow, inflammation and repair, the nature and causes of tissue injury, abnormalities of cell growth, neoplasia, and the relationship of genetics to disease are discussed as general processes at a mechanistic level. These basic pathogenic processes are subsequently applied to the diseases occurring in complex organ systems such as the skin and endocrine and reproductive systems, which serve as a bridge between Veterinary Pathology I and Veterinary Pathology II.

536 Veterinary Pathology II Second year, spring. 5 credits. Prerequisites: Veterinary Pathology I (535). Lectures, T W R 9:05. Laboratories, T R 10:10–12:35. R. M. Lewis and staff.
A systematic study of the diseases in each major organ system with emphasis on differential diagnostic features and the correlation of disturbed function with morphologic change.

539 Introduction to Laboratory Animal Medicine Third year, fall. 1 credit. Prerequisites: Pathology 535 and 536. Lecture, M 11:15. F. W. Quimby and staff.
An introduction to the biology and diseases of common laboratory animal species, including mice, rats, hamsters, guinea pigs, rabbits, and nonhuman primates. Exotic species, including amphibia and reptiles, are also discussed. The etiology and pathogenesis of the most prevalent diseases are emphasized. Practical means of diagnosis and treatment are discussed. The course also provides an overview of the many aspects of laboratory animal medicine as practiced in academics, industry, and research.

540 Pathology Service Fourth year, fall or spring. J. T. Blue, J. M. King, M. C. Peckham.
Experience will be obtained on the Necropsy service, Clinical Pathology Service, and Avian Disease Service.

571 Clinical Pathology Third year, fall. 2 credits. Prerequisites or corequisite: Pathology 535 and 536. Students from other colleges may be admitted by special permission. Lectures, M 9:05, F 10:10. Laboratory, M 2:05–4:25, T 2:05–4:25. Laboratory omitted when two lectures are given. J. Blue.
The course teaches the application of hematology, urinalysis, cytology, and other laboratory procedures to the evaluation of clinical disorders.

635 Special Problems in Pathology Fall or spring term. By permission of instructor only. Hours to be arranged. R. M. Lewis and staff.

[636 Wildlife Pathology Fall. 2 credits. Veterinary elective course for first-, second-, or third-year students. Not offered 1983. Lecture, W 2:05–4:25. J. M. King.
A presentation of the nature and causes of diseases of wild rabbits, opossums, squirrels, deer, certain waterfowl, and some other species. Emphasis on epizootiology, etiology, pathogenesis, diagnostic lesions, and effects on populations. Laboratory experience in specimen collection and necropsy techniques. Guest lectures on ecology and population dynamics by members of the Department of Natural Resources.]

[**637 Postmortem Pathology** Fall. 1 credit
Veterinary elective course for first-, second-, or third-year students. Not offered 1983. Lecture. F 2. J. M. King.
A presentation of gross and microscopic lesions of diagnostic significance, employing color projection slides as illustrations. Emphasis on pathological and differential diagnosis of a wide spectrum of viral, metabolic, bacterial, parasitic, and other diseases]

639 Autotutorial Course in Laboratory Animal Medicine and Science Fall or spring. 1 credit. This course is for individual review. Hours to be arranged. F. W. Quimby.
The objectives of the course are to discuss, identify, describe, define, or list in regard to laboratory animals (1) the justification for their use, (2) legislation and guidelines pertaining to their use, (3) their role as animal models, (4) the significance of diseases as complications of biomedical teaching and research, (5) the primary uses of each species, (6) their significant biologic characteristics, (7) the principles of sound husbandry procedures, (8) their principal diseases, their significance, and satisfactory procedures for their diagnosis, treatment, control, and prevention, including the application of gnotobiotic and pathogen-free procedures. The course is intended to prepare the undergraduate veterinary student to handle problems concerning the common laboratory animals, for example, rodents, lagomorphs, and nonhuman primates, as they are encountered in veterinary practice. Examinations and a subjective evaluation form are required for each minicourse.

[**640 Principles of Toxicological Pathology** Fall, odd-numbered years. 3 credits. Elective for graduate students. Not offered 1983–84. Lectures, R 1:05–3:15. Laboratory, R 7–9 p.m. J. M. King.
The primary objective of this elective graduate-level course is to make the student aware of the problems and their solutions encountered in pathology as it applies to the field of toxicology, with special emphasis on industrial toxicology and governmental regulations.]

641 Clinical Immunology Spring. 1 credit
Lecture, F 2–3. R. M. Lewis.
This course emphasizes the clinical aspects of fifteen specific diseases that are mediated by immunologic processes. Case material from the teaching hospital will be used to illustrate the presenting clinical signs, laboratory diagnostic methods, clinical course, therapeutic approaches, and eventual outcome of each disease under discussion. Student participation in the informal case discussions will be encouraged as a means of introducing students to the practice of veterinary medicine through case discussion and analysis. Training will also be provided in the use of the college's computerized biomedical information system and the hospital records system as a means to develop a critical case analysis, which serves as the basis for grading.

736 Pathology of Nutritional Diseases Spring. 3 credits. For graduate students in pathology or nutrition and as elective course for veterinary students at sophomore level or above. Prerequisite: Pathology 535. Lecture, W 8. Laboratory, W 2:05–4:25. L. P. Krook.

739 Advanced Work in Pathology Fall or spring. 1 to 3 credits by arrangement. Properly prepared students may undertake special problems or receive special assignments. R. M. Lewis and staff.

749 Laboratory Animal Clinical Rotation Fall or spring. 4 credits. Limited to graduate students in Laboratory Animal Medicine. Hours to be arranged. F. W. Quimby.
To gain clinical experience in the management and care of various laboratory animal species as well as in the professional operation of a large animal facility, students are rotated through various areas, including the experimental surgery laboratory, animal diagnostic laboratory, and the animal facility.

788 Seminar in Surgical Pathology Fall or spring. 1 credit. Veterinary elective for third- and fourth-year veterinary students, graduate students, interns, and residents. Lecture-seminar, T 8. B. J. Cooper and staff.
The major objective of this course is to introduce the students to the gross and microscopic features of surgical pathology. Selected material from the Surgical Pathology Service is prepared in advance for independent review by the students. The material is presented in a slide seminar format by the students under the review of the faculty. Emphasis is placed on pathogenesis, etiology, and pathologic descriptions of the lesions. In addition, appropriate guest lecturers cover specific areas of interest and special topics not encountered in the departmental service programs.

[**789 Seminar in Necropsy Pathology** Fall or spring. 1 credit. Veterinary elective for third- and fourth-year veterinary students, graduate students, interns, and residents. Not offered 1983–84. Lecture-seminar, R 8. J. King.
The major objective of this course is to introduce the student to the gross and microscopic features of necropsy pathology. Selected material from the Necropsy Service is prepared in advance for independent review by the students. This material is presented in a slide seminar format by the students under the review of the faculty. Emphasis is placed on pathogenesis, etiology, and pathologic description of the lesions. In addition, appropriate guest lecturers cover specific areas of interest and special topics not encountered in the departmental service programs]

790 Special Topics in Pathology Fall. 1 credit
Veterinary elective for third- and fourth-year veterinary students, graduate students, interns, and residents. Lecture-seminar, M 8. R. M. Lewis and staff.
The major objective of this course is to introduce the student to the gross and microscopic features of special topics in pathology, including neuropathology, ocular pathology, reproductive pathology, and the pathology of laboratory animals, avian and marine species. Selected material from the Surgical and Necropsy services is prepared in advance for independent review by the students. This material is presented in a slide seminar format by the staff. Emphasis is placed on pathogenesis, etiology, and

pathologic description of the lesions. In addition, appropriate guest lecturers cover specific areas of interest and special topics not encountered in the departmental service programs.

[791 Mechanisms of Disease Spring, odd-numbered years. 3 credits. Prerequisites: Veterinary Pathology I or equivalent, basic immunology, biochemistry, or permission of instructor. Not offered 1984. Lectures, M W F 11:15. D. O. Slauson, R. R. Minor, G. L. Cockerell.
A lecture course in advanced general pathology emphasizing pathogenetic mechanisms involved in selected disease processes. Regulatory phenomena in cells and tissues, cellular pathology, developmental pathology, the nature and causes of disease, connective tissue responses, vascular and cellular events in inflammation, humoral amplification systems, molecular mechanisms in immunopathology and the biochemistry of hypersensitivity states, macrophage pathophysiology, membrane receptors of hemic-lymphatic cells, molecular messages in cell-mediated immunity, etiopathogenesis of neoplasia, tumor biology and pathology, tumor-specific immune mechanisms.]

792 Immunopathology Spring, even-numbered years. 3 credits. Limited to graduate students, interns, and residents. Prerequisites: Veterinary Pathology I, Basic Immunology, or permission of instructor. Lectures, M W F 10:10–11:15. G. L. Cockerell, B. J. Cooper, R. M. Lewis, D. O. Slauson.
This advanced lecture course provides an in-depth discussion of naturally occurring immunologically mediated diseases of domestic animals. Extensive reference is made to analogous conditions in man and experimentally induced counterparts in animals. Primary emphasis is placed upon an understanding of the structural and functional tissue changes and their immunopathogenesis. Diseases are discussed on an organ system basis, and discussions of immunodeficiencies, multisystem disorders, and systemic infectious diseases are included.

793 Lectures in General Pathology Fall. 2 credits. Graduate students. Prerequisite: permission of instructor. Lectures, T R 9:05. D. O. Slauson.
This course consists of only the lecture portion of Pathology 535 without the laboratory. It is designed to accommodate certain graduate students who desire exposure to general pathology but lack histology experience. The subject matter covered is described under 535.

794 Lectures in Special Pathology Spring. 3 credits. Graduate students. Prerequisite: permission of instructor. Lectures, T R 9:05, W 11:15. R. M. Lewis
A systematic study of the diseases in each major organ system with emphasis on differential diagnostic features and the correlation of disturbed function with morphologic change.

795 Pathology of Laboratory Animals Fall. 1 credit. Prerequisites: Pathology 535 and 536 or equivalent. W 8. W. L. Castleman.
Selected major infectious, neoplastic, genetic, and age-related diseases of rodents, lagomorphs, and nonhuman primates are discussed. Emphasis is placed on pathogenesis and gross and microscopic features as well as other ancillary procedures for the diagnosis of diseases of laboratory animals. Research complications arising from the diseases and spontaneous diseases used as experimental models of human disease are also discussed.

Microbiology

Professors C. G. Rickard, acting chairman; M. Appel, S. G. Campbell, L. E. Carmichael, J. H. Gillespie, K. M. Lee, G. Lust, D. D. McGregor, F. M. Noronha, F. W. Scott, B. E. Sheffy; Professors Emeriti C. Boyer, D. W. Bruner; Associate Professor J. F. Timoney; Assistant Professors D. F. Antczak, R. G. Bell, G. M. Dunny; Senior Research Associates C. G. Fabricant, D. F. Holmes, M. J. Kemen; Research Associates M. Newman, M. Woan; Senior Extension Associate L. Wuori; Lecturer L. Winter; Joint Appointees Professor N. L. Norcross, G. C. Poppensiek, A. J. Winter; Associate Professor W. Rebhun; Assistant Professor V. Utermohlen; Courtesy/Adjunct Appointees Professors D. Axelrod, J. J. Callis, M. Essex, R. Gallo, S. Litwin, C. Mebus; Associate Professor D. Morgan; Assistant Professor C. Grant; Postdoctoral Fellows J. Appelton, J. Desiderio, L. Tortorello, N. Wurster; Graduate Research Assistants J. Baines, C. Baldwin, J. Barlough, P. Christie, M. Conner, A. Crump, C. Davies, D. Eggers, J. Galan, W. Higgins, C. Parrish, C. C. Sheu, C. Stoddart, K. Trotter, C. H. Wang, A. Wanger, S. Youngren.

Courses 515, 516, 517, and 518 are required in the veterinary core curriculum of the College of Veterinary Medicine and are given particularly for veterinary students. Students of other colleges must have special permission to register in any of these courses. The other courses are not a part of the regular veterinary curriculum. They are available to graduate, veterinary, and undergraduate students who have obtained the appropriate prerequisite training and permission to register.

315 Basic Immunology, Lectures (also Biological Sciences 305) Fall. 2 credits. Letter grades only. Recommended: basic courses in microbiology and biochemistry. T R 9:05. A. J. Winter.
Course material covers current concepts in immunology at an elementary level with special emphasis on the biological functions of the immune response.

316 Basic Immunology, Laboratory (also Biological Sciences 307) Fall. 2 credits. Prerequisite: a course in basic microbiology or special permission of the instructor. Recommended: Concurrent enrollment in Veterinary Medicine 315. Laboratories, T R 10:10–12:15. N. L. Norcross.
Designed to illustrate immunological concepts presented in Veterinary Medicine 315. Laboratory exercises are selected to familiarize students with basic humoral and cellular immune phenomena and to offer firsthand experience in immunological laboratory techniques.

317 Pathogenic Microbiology Spring. 4 credits. Intended primarily for graduate and undergraduate microbiology majors. Enrollment limited to 48 students. Prerequisites: Microbiology 290 and 291 (College of Agriculture and Life Sciences). Recommended: Veterinary Medicine 315 and 316. Lectures, T R 1:05–1:55. Laboratory, 2:05–4:25. G. M. Dunny, J. H. Gillespie, L. Winter.
This is a two-part course in medical microbiology, covering pathogenic bacteriology and virology. Lectures in bacteriology cover the major groups of bacterial pathogens and some of the important virulence mechanisms, as well as highlight certain aspects of the normal flora, antibiotic therapy, and drug resistance that are relevant to the pathogenesis of bacterial disease. Virology lectures provide the student with an introduction to animal viruses and discuss viral diseases, biochemistry, genetics, and replication. Laboratories emphasize techniques for isolation and culture of bacterial and viral pathogens, as well as demonstrate tissue culture and animal models for studying the pathogenesis of, and the immune response to, infectious agents. One important principle emphasized in both portions of the course is that disease is the product of the interaction of the host, pathogen, and environment.

515 Veterinary Immunology Second year, fall. 2 credits. Lecture, T 1:05. Laboratory: section 1, M 2:05–4:25; section 2, T 2:05–4:25. S. G. Campbell.
The objective of the lectures is to give the veterinary student a general outline of the mammalian and avian immune response. Emphasis will be on basic principles, using examples from domestic animals, thereby stressing the applications of immunology to veterinary medicine. The laboratories illustrate and enlarge upon the concepts presented in the lectures and give the student firsthand experience of the simple immunological tests commonly used in veterinary practice. The more complex tests are presented as demonstrations. Discussion of the immunological aspects of immunology is incorporated whenever possible.

516 Veterinary Bacteriology and Mycology Second year, fall. 3 credits. Lectures, T R 8:05–8:50. Laboratory: section 1, W 2:05–4:25; section 2, R 2:05–4:25. J. F. Timoney, L. Winter, G. M. Dunny.
The lectures in veterinary bacteriology are intended to give the veterinary student an understanding of the circumstances and processes by which pathogenic bacteria and fungi enter and cause disease in the different organ systems of animals. Thus the student will be given the basis for an intelligent approach to the symptomatology, diagnosis, control, treatment, and prevention of bacterial and fungal diseases in domestic animals. Laboratory exercises will involve isolation, culture, and identification of the major groups of veterinary fungal and bacterial pathogens as they occur in clinical material. These exercises will be supplemented with discussion-demonstration sessions with clinicians and diagnostic microbiologists, where recognition of these organisms in clinical specimens will be emphasized.

517 Veterinary Virology Second year, spring. 2 credits. Lectures, M 2:05, W 11:15. F. W. Scott.
This course will cover viruses that produce important diseases in animals. Topics of interest to the clinician leading to better understanding and control of these diseases, will be discussed, including the basic properties of the virus, how the virus produces disease, and how the host responds to the virus infection. Virological and serological procedures important for the diagnosis of various virus diseases will be discussed.

518 Infectious and Zoonotic Diseases Second year, spring. 3 credits.
Lecture-demonstration-discussion, M 10:10–12:35. Lecture, R 1:05–1:55. D. F. Holmes (zoonotic diseases); G. C. Poppensiek (foreign animal diseases).
Clinical signs, etiology, methods of differential diagnosis, pathogenesis, methods of spread, reservoir hosts, methods of prevention and control of diseases transmissible to man, and foreign animal diseases that resemble indigenous, infectious diseases or present serious economic or public health threats to the United States.

605 Special Projects in Microbiology Fall or spring. Credit and hours to be arranged. Prerequisite: permission of the instructor. S-U grades optional. Microbiology staff.
The course is designed for undergraduates and as a veterinary elective. Preferably, students should have some background in pathogenic microbiology and immunology.

606 Small Animal Infectious Diseases Spring. 2 credits. Prerequisite: three semesters of the veterinary college curriculum or permission of the instructor. S-U grades. F 2:05. F. W. Scott and guest lecturers.
An elective course designed to give the future small animal practitioner a greater understanding of the infectious diseases of the dog and cat. Emphasis will be on etiology, pathogenesis, and prevention, including maternal immunity, vaccination, and hospital design as it relates to the spread of disease. The course will be coordinated with small animal medicine and microbiology core courses in order to prevent excess repetition. The diseases covered will include the diseases of dogs and cats that are caused by viruses, bacteria, fungi, and protozoa.

[607 Virus Diseases of Cattle Fall. 1 credit. S-U grades. Elective course for junior and senior veterinary students and graduate students. Offered alternate years. Not offered 1983, next offered 1984. W 8:00. F. Fox, J. Gillespie, J. King, and guest lecturers.
Designed to give the future bovine practitioner an understanding of the viral diseases of cattle raised in the United States. Emphasis will be placed on clinical signs and diagnosis, etiology, pathogenesis, pathology, control and prevention (including maternal immunity), vaccination, and other therapy. A clinician, a pathologist, and a microbiologist will be in attendance at every lecture to cover each aspect of

the disease as it relates to their discipline. This assures complete coverage of each topic through appropriate interaction and integration of the subject matter.]

706 Immunology Seminar Series Fall and spring. No credit. S-U grades only. Attendance and participation required of all graduate students in the Field of Immunology. 12:15–1:15, first and third Fridays of each month. D. Antczak.
Presentations of research investigations by Cornell faculty, postdoctoral fellows, and graduate students in the Field of Immunology and by invited speakers from other institutions.

707 Advanced Work in Bacteriology, Virology, or Immunology Credit and hours to be arranged. Prerequisite: permission of instructor. S-U grades optional. Microbiology staff.
This course is designed primarily for graduate students with a good background in pathogenic microbiology and immunology. It may be elected by veterinary students who are properly prepared.

[708 Animal Virology Spring. 4 credits. Prerequisite: Veterinary Medicine 317, 517, or equivalent. General knowledge of biochemistry and animal pathology helpful. Priority given graduate students. S-U grades unless otherwise requested. Offered alternate years. Not offered 1984; next offered 1985. Lectures, M W F 11:15–12:05. Seminar-discussions, hours to be arranged. M. J. Appel, L. E. Carmichael, K. A. Schat, and staff.
Principles of animal virus biology, including discussion of viral groups and animal viral pathogenesis.]

709 Laboratory Methods of Diagnosis Fall and spring. 1 to 3 credits by arrangement. Prerequisite: permission of instructor. S-U grades optional. Microbiology staff.
Instructions and practice in the application of microbiological and serological methods for the diagnosis of disease.

710 Microbiology Seminar Fall and spring. No credit. S-U grades. Required of all graduate students in microbiology. M 12:15. Instructor to be announced.

713–718 Topics in Immunology Coordinator, R. G. Bell.

[713 Advanced Immunology: The MHC (Major Histocompatability Complex and Its Role in the Regulation of Immune Responses) Spring. 1 credit. This course will involve intensive student participation, and enrollment will be restricted. Prerequisite: Introductory Immunology. S-U grades optional. Offered alternate years. Not offered 1984; next offered 1985. Lectures, M W F 9. D. Antczak.]

[714 Advanced Immunology: Viral and Tumor Immunity Spring. 1 credit. This course will involve intensive student participation, and enrollment will be restricted. Prerequisite: Introductory Immunology. S-U grades optional. Offered alternate years. Not offered 1984; next offered 1985. Lectures, M W F 9. K. A. Schat.]

715 Advanced Immunology: Mucosal Immunity Spring. 1 credit. Enrollment restricted. Prerequisite: Introductory Immunology. S-U grades optional. Offered alternate years. Not offered 1984; next offered 1985. Lectures, M W F 9. R. G. Bell.]

716 Advanced Immunology (topic to be announced) Spring. 1 credit. This course involves intensive student participation, and enrollment will be restricted. Prerequisite: Introductory Immunology. S-U grades optional. Offered alternate years. Lectures, M W F 9.

717 Advanced Immunology: Cell Surface Receptors in the Immune Response Spring. 1 credit. This course involves intensive student participation, and enrollment will be limited. Prerequisite: Introductory Immunology. S-U grades optional. Offered alternate years. Lectures, M W F 9. D. Holowka.

718 Advanced Immunology (topic to be announced) Spring. 1 credit. This course involves intensive student participation, and enrollment will be restricted. Prerequisite: Introductory Immunology. S-U grades optional. Offered alternate years. Lectures, M W F 9.

Avian and Aquatic Animal Medicine

Professors B. W. Calnek, chairman (on leave through February); J. Fabricant, D. L. Graham, L. Leibovitz, M. C. Peckham, C. G. Rickard; Adjunct Professor K. E. Wolf; Associate Professor K. A. Schat; Courtesy Associate Professor H. A. Poston; Senior Research Associate S. A. Haider; director of Laboratory W. F. Dean; Field Veterinarians G. B. Mitchell, T. S. Sandhu

The department maintains a poultry disease diagnostic clinic at the college and two regional diagnostic laboratories in different parts of the state. A diagnostic laboratory for aquatic animal diseases is also located at the college. These laboratories supply fresh material for teaching and research purposes. Adequate facilities existing at the college and the P. Philip Levine Research Laboratories for Avian Diseases provide opportunity for advanced study for properly qualified students. A disease-free breeding flock and a poultry disease isolation building are available for studies of most infectious and other diseases of poultry.

255 Poultry Hygiene and Disease Fall. 2 credits. Minimum enrollment, 5 students; maximum enrollment, 15 students. Prerequisites: Microbiology 290 and permission of the instructor. Lecture and laboratory, R 2:05–4:25. M. C. Peckham.
The nature of the infectious and parasitic diseases of poultry and the principles of hygiene applicable to poultry farming for the prevention and control of diseases.

555 Avian Diseases Second year, spring. 2 credits. Required of veterinary students. Lectures, M 1:05, F 10:10. Laboratory, F 11:10–12:35. M. C. Peckham, D. L. Graham.
Diseases of domestic poultry are studied with special emphasis on differential diagnosis and control. Fresh and preserved specimens from the poultry diagnostic clinic are presented during the laboratory period. Unique features of the biology and management of pet, exotic, and wild birds are presented. Diseases of these species are discussed with emphasis on clinical, differential diagnostic, medical, and control aspects.

[671 Diseases of Aquatic Animals Spring, odd-numbered years. 3 credits. Elective course for all veterinary students and interested students from other colleges. General knowledge of microbiology and parasitology would be helpful but is not required. Not offered 1984. Lecture and laboratory hours to be arranged. Instructors to be announced.
The basic study of this course relates to the etiology, pathology, diagnosis, prevention, and control of diseases of aquatic animals, with special emphasis given to the diseases of finfish and to the relationship of the aquatic environment to diseases of aquatic animals.]

672 Aquavet: Introduction to Aquatic Veterinary Medicine Four weeks of full-time instruction at Woods Hole, Massachusetts, immediately after the spring term. 4 credits. Elective course limited to 32 students from Cornell, University of Pennsylvania, and other colleges of veterinary medicine. C. G. Rickard.
The course is sponsored by this college, the School of Veterinary Medicine at the University of Pennsylvania, and three marine science institutions at Woods Hole—the Marine Biological Laboratory, the Woods Hole Oceanographic Institution, and the Northeast Center of the National Marine Fisheries Service. It is designed to introduce veterinary medical students to medicine as it applies to aquatic animals. The marine environment is described and visited on field trips in the Woods Hole area. Certain aspects of the comparative anatomy, physiology, nutrition, microbiology, pathology, and medicine of a variety of marine and freshwater species are discussed. Some emphasis is placed on systems of aquaculture. The specific diseases of a few selected species are presented as examples, including the diseases of a crustacean, a shellfish, a finfish, and marine mammals. Students present seminars on appropriate topics.

[673 Diseases of Aquarium Fish Spring, even-numbered years. 3 credits. Elective course for all veterinary students and interested students in other colleges. General knowledge of parasitology, microbiology, and pathology would be helpful but is not required. Not offered 1984. L. Leibovitz.
The course is an introduction to the subject of diseases of aquarium fish, based upon the development of an understanding of normal and pathologic anatomy, a knowledge of specific disease entities, water quality, and nutritional requirements of aquarium fish. Students are taught to apply their knowledge in developing diagnostic skills and applying methods for prevention, control, and eradication of diseases of aquarium fish.]

770 Advanced Work in Avian Diseases Fall or spring. By special arrangement with the instructor. Hours to be arranged.

[772 Advanced Work in Aquatic Animal Diseases Fall or spring. Not offered 1983–84. By special arrangement with the instructor. Hours to be arranged. L. Leibovitz.]

773 Advanced Work in Avian Immunology Fall or spring. By special arrangement with the instructor. Hours to be arranged. K. A. Schat.

Clinical Sciences

Medical Section: Professors B. C. Tennant (chief); A. deLahunta, F. H. Fox, J. M. Kingsbury, R. W. Kirk; Associate Professors W. C. Rebhun, R. C. Riis, D. W. Scott, M. C. Smith; Assistant Professors S. Center, C. L. Guard, W. E. Hornbuckle, T. Kern, P. M. Powers, J. F. Randolph, D. Walton, M. E. White, J. F. Zimmer; Instructor S. Dill.

Surgery Section: Associate Professors R. P. Hackett, J. E. Lowe, E. J. Trotter; Assistant Professors M. A. Collier, D. R. Gilmore, H. J. Harvey (chief); Instructors J. Flanders, S. Fubini, R. Todhunter.

Theriogenology Section: Professors P. N. Nathanielsz (chief), A. J. Winter; Associate Professor C. E. Hall; Assistant Professor M. G. Blue; Senior Clinician R. B. Hillman; Instructor G. Wood.

Anesthesiology Section: Professor C. E. Short (chief); Assistant Professor R. D. Gleed.

Radiological and Physical Diagnostics: Professors F. A. Kallfelz (chief), J. C. Geary; Associate Professor V. T. Rendano, Jr. (on leave 1983–84); Senior Lecturer G. D. Ryan; Instructor A. Dietze.

Equine Research: Associate Professor H. F. Schryver (director); Professor H. F. Hintz; Associate Professor J. E. Lowe.

Mastitis Research: Professor N. L. Norcross (director); Associate Professor D. S. Postle.

Mastitis Control: L. A. Wager (director); H. F. Schulte, supervisor of Ithaca Laboratory.

The majority of the lectures and laboratory courses provided by the Department of Clinical Sciences are taught during the third year of the veterinary curriculum. The practical application of the students' basic knowledge in veterinary medicine to clinical diagnosis and therapy of diseases is emphasized at this time.

The fourth year is devoted to intensive training in clinical medicine and surgery. Students are assigned responsibility for patient diagnosis and care under the close supervision of the clinical faculty. The curriculum consists mostly of an assignment to clinical services throughout the teaching hospital.

During this thirty-six-week period the students participate for twenty-eight weeks on assigned clinical services, and for any eight-week period they may elect the clinical service of their choice.

The teaching hospital is equipped with modern surgical and diagnostic services, including sophisticated radiologic facilities and diagnostic capabilities involving nuclear medicine. The clinical pathology laboratory is equipped with an automated analyzer for blood and other body fluids.

The teaching hospital consists of three clinics. The Small and Large Animal Clinics are both hospitals with complete facilities for intensive patient care. These clinics receive both outpatients and patients that are hospitalized. Patients come directly from local clientele or are referred to the teaching hospital from veterinary practitioners in New York State and predominately the surrounding states of New England, New Jersey, and Pennsylvania. Students are assigned to the patients in the hospital, where their activities are closely supervised by the clinical faculty. Students participate in the selection and evaluation of diagnostic and therapeutic procedures and assist in surgery. Although the final decision on all diagnostic and therapeutic procedures is made by the head of each service, active student participation is encouraged and is essential for optimum patient care and student education.

Proximity to an urban community and an agricultural college and well-stocked farming community offer the necessary variety of patients for study.

The Ambulatory Clinic provides veterinary service on the premises of the patient under conditions identical with those encountered in private large animal practice. Students perform physical examinations and treatment under the supervision of a clinical faculty member. The farming community adjacent to the veterinary college is largely devoted to dairy farming, providing ample material related to obstetrics and diseases of dairy cows. In addition, the New York State Mastitis Control Program maintains a central field laboratory at the college. Fourth-year students accompany and assist veterinarians in field trips that deal with all phases of bovine mastitis and related dairy management procedures.

Courses

475 Health and Diseases of Animals Spring. 3 credits. For students in undergraduate colleges. Not open to first-year students or to those who have had no course in animal husbandry. Lectures, M W F 11:15. C. E. Hall and guest lecturers from veterinary college faculty.
Diseases of domestic animals, chiefly those related to food and fiber production, are discussed with specific examples and models. Causes, prevention and control, and importance to human health are emphasized.

546 Clinical Orientation Third year, fall. 1 credit. S-U grades. One afternoon a week to be arranged. A. deLahunta.

The objectives of the course are to familiarize the students with the operation of the various clinical services in the teaching hospital, to permit the students to have direct involvement in the various aspects of patient care, and to provide some relevant experience to their didactic course work.

560 Clinical Methods Second year, fall. 2 credits. Lecture, M 8. Laboratory, M T W or F 2:05- 4:25. M. E. White and faculty of surgery and medicine sections.
Restraint methods and clinical techniques used in physical examinations for diagnosis and therapeutics of small and large domestic animals. The laboratories utilize practical demonstrations, and students participate in examinations of normal animals and selected clinical cases of the diseased animals.

561 Obstetrics and Reproductive Diseases Second year, spring. 3 credits. Lectures, T 8, W 10:10. Laboratory, W or R 2:05- 4:25. Fee, $15. R. Hillman.
A presentation of applied physiology and endocrinology of the male and female reproductive tract; congenital, infectious, endocrine, and miscellaneous diseases of the genital organs causing infertility and sterility, and artificial insemination.

562 Obstetrics and Reproductive Diseases Third year, fall. 3 credits. Lectures, T R 10:10. Laboratory, W or R 2:05- 4:25. Fee, $15. R. B. Hillman.
Pregnancy diagnosis; diseases of the gestation period, including teratology and abortion, parturition, dystocia, obstetrical operations, and postpartum diseases, are presented.

563 Large Animal Medicine Third year, fall. 4 credits. T W R F 9:05. F. H. Fox, C. L. Guard, R. B. Hillman, W. C. Rebhun, M. C. Smith, B. C. Tennant, M. E. White.
Lectures or recitations covering physical diagnosis, therapeutics, and some diseases of large animals. In addition to the instruction provided by the department staff, M. C. Smith will give lectures concerning poisonous plants.

564 Large Animal Medicine Third year, spring. 4 credits. M T R 8:00. W 9:05. F. H. Fox, C. L. Guard, R. B. Hillman, W. C. Rebhun, M. C. Smith, B. C. Tennant, M. E. White.
A continuation of Clinical Sciences 563.

565 Large Animal Surgery Third year, spring. 3 credits. Lectures, M W 11:15, F 1:05. M. A. Collier, S. Fubini, R. P. Hackett, R. Todhunter.
Lectures designed to impart a general knowledge of the principles of surgery, surgical pathology, therapeutics, operative techniques, and lameness of large domestic animals.

566 Radiology Third year, spring. 2 credits. R 11:15, F 10:10. A. E. Dietze, G. D. Ryan.
Fundamentals of radiographic diagnosis, radiation therapy, and radiation safety.


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567 Clinical Nutrition Third year, fall. 2 credits Required of veterinary students. M W 10:10. F. A. Kallfelz
Lectures and demonstrations reviewing basic principles of nutrition and covering nutritional and metabolic disease problems of domestic animals. The use of nutritional principles in the prevention, treatment, and management of diseases of domestic animals is stressed. Case material from the teaching hospital is used whenever appropriate.

568 Veterinary Medical Orientation First year, fall 1 credit. T 12. A. deLahunta and guest lecturers from faculty of the Department of Clinical Sciences.
The course exposes students to the areas of clinical medicine that relate to the material studied in the gross and developmental anatomy courses. Examples include regional radiographic diagnoses and surgery; cardiac examinations, including auscultation; ophthalmic examination, and the physical examination and restraint of small animals.

569 Veterinary Medical Orientation First year, spring. 1 credit. M 8. W. C. Rebhun
This course exposes the student to clinical large animal medicine as it relates to material simultaneously studied in the basic sciences of anatomy, histology, and physiology. Physical examination of large animals, basic restraint of large animals, and regional anatomy of specific clinical entities are discussed. Examples of histology versus histopathology are used to illustrate some discussions.

572 Senior Seminar Fourth year, fall and spring. Fourth-year students are required to attend these conferences. First-, second-, and third-year students and all staff members are also invited to attend. F 7:30 a.m. D. S. Postle, chairman.
The aim of this course is to give the student the responsibility and opportunity of selecting and studying a disease entity based on a case or series of cases or to give the student the responsibility and opportunity of conducting a short-term, clinically oriented research project under the direction of a faculty member. In either case, an oral report will be presented at a Friday seminar. A written report also will be submitted after the seminar. All participants are encouraged to foster an atmosphere in which discussion, exchange of ideas, and the airing of controversial opinions might flourish.

579 General Medicine Second year, spring. 2 credits. M F 9:05–9:55. B. C. Tennant and faculty of section of medicine.
An introduction to veterinary internal medicine, with emphasis given to the comparative aspects of disease and to the pathophysiologic basis of the cardinal clinical manifestations of organ system dysfunction.

581 Nutrition First year, fall. 2 credits. Lecture, M 10:10–11. Laboratory, T 2:05–4:25.
H. F. Hintz.
Function of nutrients, sources of nutrients, and identification and evaluation of feedstuffs and feeding programs for livestock and companion animals will be discussed.

582 Large Animal Surgical Techniques Third year, spring. 1 credit. M T W R 1:05–6:20 (divided in groups A–D). M. A. Collier and faculty of surgery and anesthesiology sections.
This course is designed to impart fundamental skills in preoperative and postoperative care, anesthesia, aseptic technique, and surgical technique by closely supervised operations on the large domestic animals.

583 Small Animal Medicine and Surgery Third year, fall. 3 credits. Prerequisites: Pathology 536, Clinical Pathology 571, Pharmacology 528. T R F 11:15. R. W. Kirk and faculty of the medicine, surgery, and anesthesiology sections.
A comprehensive course in medical and surgical diseases of small animals, arranged and presented by systems.

584 Small Animal Medicine and Surgery Third year, spring. 8 credits. M T R F 9:05–11. R. W. Kirk and faculty of the medicine, surgery, and anesthesiology sections.
A continuation of Clinical Sciences 583.

586 Small Animal Surgical Exercises Third year, spring. 2 credits. M T W or R 1:05–6:20. H. J. Harvey and faculty of the surgery and anesthesiology sections.

587 General Surgery and Anesthesiology Third year, fall. 3 credits. Prerequisite: Pathology 536. Fee, $75. M T R 8. H. J. Harvey and faculty of the surgery and anesthesiology sections.
The principles of surgery are given, including aseptic technique, tissue considerations and healing, indications for surgery, types of wounds, and prevention and treatment of surgical complications. The general principles of anesthesia are presented, including the various techniques and pharmacological agents, as well as treatment of shock and preoperative and postoperative patient support.

675 Special Problems in Large Animal Medicine Fall or spring term. By permission of the instructor only. Hours to be arranged.

676 Special Problems in Large Animal Surgery Fall or spring term. By permission of the instructor only. Hours to be arranged.

677 Special Problems in Large Animal Obstetrics Fall or spring term. By permission of the instructor only. Hours to be arranged.

680 Poisonous Plants Fall. 1 credit. Elective course for all veterinary students. W 8. R. B. Hillman, M. C. Smith.
Lectures and field trips will be utilized to establish identification of toxic plants and to acquaint students with criteria for establishing a diagnosis of plant poisoning and instituting rational therapy.

681 Horse Health Management Spring 1 credit. Elective course for third- and fourth-year veterinary students who have special interest in horses. W 8 R. B. Hillman.
Prevention of horse diseases from foaling through adulthood by management practices, nutrition, and vaccination procedures will be emphasized.

[682 Large Animal Internal Medicine Fall 1 credit Elective course for third- and fourth-year veterinary students. Offered alternate years. Not offered 1983–84. W 8. B. C. Tennant.
Selected topics of large animal internal medicine using lectures and case presentation Emphasis will be given to the major diseases of the cardiovascular, respiratory, and gastrointestinal systems.]

684 Horse Lameness Spring. 1 credit. Offered to third-year veterinary students. F 2.
J. E. Lowe.
This course is designed to acquaint third-year students with the principles of lameness diagnosis. Physical examination for soundness of the musculoskeletal system is stressed through lecture demonstration and assigned case material from the Large Animal Hospital and Equine Research Park. Motion pictures and television tapes are used each week to illustrate principles of diagnosis and specific types of lameness.

686 Goats: Management and Diseases Spring 1 credit. Elective course for second-, third-, and fourth-year veterinary students. W 7. M. C. Smith.
Common nutritional, reproductive, medical, and surgical problems of goats will be emphasized.

687 Diseases of Swine Spring. 1 credit. Elective course for fourth-year veterinary students.
R 7. F. H. Fox.
Detailed consideration of most diseases affecting swine. There will be more in-depth discussion than is possible in Diseases of Large Animals. Guest lecturers will discuss their specific areas of concern and the field problems that may be encountered in New York State.

688 Special Problems in Small Animal Medicine Fall or spring. By permission of instructor only. Hours to be arranged.

689 Special Problems in Small Animal Surgery Fall or spring. By permission of instructor only. Hours to be arranged.

690 Veterinary Dermatology Spring 1 credit. W 8.
D. W Scott.
This course will emphasize dermatologic conditions of small and large animals *not* covered in the core curriculum, along with dermatopharmacology. Course grade will be based on a paper or final examination.

691 Advanced Large Animal Internal Medicine Problems Fourth year, spring. 2 credits. Lecture, T 8, R 7. Laboratory, S 7–9 a.m.
W. C. Rebhun and faculty of medicine section.
This course offers the fourth-year veterinary students interested in large animal medicine advanced training in internal medicine. The course will go into more detail on working up problematic large animal medicine cases than time will allow in the core curriculum. The laboratory will allow students to perform diagnostic procedures they may have had only a random chance to do in the clinics

778 Gastroenterology Conference Spring 1 credit. R 1:05. B. C Tennant.

[779 Veterinary Gastroenterology Spring 2 credits. W 8–9, F 2–3. Not offered 1984. B. C. Tennant and others.
Pathogenesis, diagnosis, and treatment of the major medical diseases of the gastrointestinal tract of domestic animals]

782 Ophthalmology Fall. 1 credit R 7. T. Kern, W. C. Rebhun, R. C. Riis.
This is an elective course for students who have completed the basic course. Special lectures include bovine ophthalmology, equine ophthalmology, keratopathies, retinopathies, special diagnostics.

Clinical Service Courses

Clinical service courses are offered for sixteen weeks in the fall semester and twenty weeks in the spring semester. During this thirty-six-week period the student must attend twenty-eight weeks of required courses and eight weeks of elective courses. Four weeks may be taken as vacation. The student will receive one hour of credit for every week on a clinical service course.

Required courses

Four weeks each:

574 Large Animal Surgery Service R. Hackett.

575 Ambulatory Medicine Service M. C. Smith.

589 Small Animal Medicine Service J. F. Zimmer.

591 Small Animal Surgery Service H. J. Harvey.

Two weeks each:

540 Pathology Service J. T. Blue
Experience will be obtained on both the Necropsy Service and Clinical Pathology Service.

578 Anesthesiology Service C E Short

580 Radiology Service F. Kallfelz

593 Ophthalmology Service R. C Riis.

594 Large Animal Medicine Service
W. C. Rebhun.

598 Dermatology Service D W Scott

Elective Courses

Two to four weeks of the above required courses may be repeated as an elective course.

547 Practice Management (two weeks only)
A. deLahunta.

570 Theriogenology (four weeks only)
R. B. Hillman.

Diagnostic Laboratory

Professor R. H. Cypess, director; Associate professors J. D. Henion, D. H. Lein, assistant director (head, Field Services), G. A. Maylin (head, Division of Toxicology); Assistant Professors E. J. Dubovi (director, Virology Laboratory), R. H. Jacobson, T. J. Reimers (director, Endocrinology Laboratory); Directors of Laboratory Operations M. Georgi, S. J. Shin, D. Strickland; Joint Appointee J. R. Georgi.

The Diagnostic Laboratory contains the following sections: Microbiology (Bacteriology and Virology), Automated Serology, Endocrinology, Toxicology, and Field Services. The mission of the laboratory is the prevention and control of the diseases of animals, with particular emphasis on diseases of food and fiber species and the zoonoses. The Diagnostic Laboratory serves as a resource center whose concerns are diagnostic service for the veterinary profession and animal industry, epidemic investigation, development and evaluation of new diagnostic tests, preventive medicine, and extension functions. Its faculty participate collaboratively in the teaching, service, and research activities in the various departments throughout the college.

The Diagnostic Laboratory maintains laboratories of virology, bacteriology, parasitology, immunology, endocrinology, epidemiology, immunology, and toxicology. Last year over 280,000 tests were run for a wide range of diagnostic procedures, in addition to the drug testing described below. The Equine Drug Testing and Research Program assists the racing industry and certain other equine activities in the control of the use of drugs that might influence the performance of horses. A broadly based research program studies the metabolism and pharmacodynamics of drugs and develops methods for detecting them and their metabolities in blood and other body fluids. Analytical methods employ gas chromatography, mass spectrography, X-ray fluorescence, computer analysis, and other sophisticated technology to achieve detection of drugs at very low levels of concentration. Satellite testing laboratories are established at the harness tracks in the state, where all racing animals are examined by a prerace blood test. Over 151,000 tests were done last year, 75 percent of them prerace tests.

Preventive Medicine

Professors R. H. Cypess, chairman; J. R. Georgi, J. H. Whitlock (emeritus); Associate Professor D. G. Lindmark; Assistant Professors J. G. Babish, L. Clark, H. N. Erb, J. M. Scarlett Kranz, D. Wassom; Joint Appointees E. W. Cupp, M. Georgi, R. H. Jacobson, D. Lein, G. Maylin, G. C. Poppensiek, T. J. Reimers, R. D. Smith.

This department was organized in 1977 to emphasize three areas of study: (a) epidemiology, biostatistics, and public health; (b) animal health management; and (c) environmental health. In 1978 master's and Ph.D. concentrations in epidemiology were approved. The Section of Parasitology and International Health, added to the department in 1979 as part of the college's reorganization plan, is responsible for both instruction in veterinary parasitology and training of professional parasitologists. Specialized areas of research include diagnostic parasitology, immunoparasitology, parasite biochemistry and chemotherapy, bionomics, and systematics. The section offers both master's and Ph.D. degrees in parasitology.

331 Medical Parasitology Fall. 2 credits
Prerequisite: zoology or biology. Letter grades only. Lectures, M F 9:05. R. H. Cypess, J. R. Georgi, D. G. Lindmark, and staff.
Identical to, and concurrent with, Veterinary Medicine 510, Animal Parasitology, except for the last eight lectures, which are devoted to special consideration of human parasitic diseases, by Professor Cypess.

510 Animal Parasitology Second year, fall. 2 credits. Letter grades only. Prerequisite: zoology and biology. Lecture, M F 9:05. J. R. Georgi, D. G. Lindmark, and staff.
A systematic study of arthropod, protozoan, and helminth parasites of vertebrate animals, with particular emphasis on the bionomics, epidemiology, and control of parasitisms of veterinary and public health importance. Presented in conjunction with Veterinary Medicine 511, Diagnostic Parasitology.

511 Diagnostic Parasitology Second year, fall. 2 credits. Letter grades only. Laboratories, M F 10 10–12:25
J. R. Georgi and staff.
Practical exercises in the antemortem and postmortem diagnosis of arthropod, protozoan, and helminth parasitisms of domestic animals and interpretation of their pathogenetic significance. Presented in conjunction with Veterinary Medicine 510, Animal Parasitology.

512 Veterinary Medical Orientation First year, fall. 1 credit. S-U grades only. R 9:05. R. H. Cypess, H. Erb, M. Brunner, and guest lecturers.
Lectures and discussion of veterinary medical ethics; veterinary jurisprudence; the organization, function, and goals of the College of Veterinary Medicine; and topics related to the interaction of the veterinarian in today's society. A series of lectures will deal with critical evaluation of medical literature, including basic statistical terms and concepts to which readers are exposed.

520 Preventive Medicine in Animal Health Management Third year, spring. 2 credits. Letter grades only. Lectures, W 10:10–11, F 11:15–12:05. H. N. Erb, M. E. White, J. M. Scarlett Kranz.
Topics will include critical evaluation of the literature, economics, record keeping, monitoring production and disease, and preventive herd health, including quarantine, vaccination, animal management, and physical environment.

545 Veterinary Epidemiology First year, fall. 2 credits. Letter grades only. M 10:10–11, W 1:05–1:55. H. E. Erb, J. M. Scarlett Kranz.
This course includes a review of the basic concepts of acute and chronic disease epidemiology utilizing descriptive, analytical, and experimental techniques. The application of epidemiologic methods to the investigation of disease outbreaks and to the recognition, prevention, and control of diseases will be discussed.

660 Safety Evaluation in Public Health (also Toxicology 660) Spring. 2 credits. Elective for veterinary students (even years) and graduate course. Prerequisites: an introductory-to-intermediate-level course in biology, biochemistry, or physiology. A concurrent or prior course in toxicology would be helpful. S-U grades optional. Lecture, F 2:05–4:25. J. G. Babish.
Applying toxicologic methods for assessing chemical hazards to populations has become a major role of toxicologists in industry and government today. In this course current methodologies in risk assessment will be presented with emphasis on the interpretation of data in terms of public health effects. Topics covered will include (1) the concept of a safe level, (2) standards for acceptable testing, (3) good laboratory practices and government regulations, (4) testing procedures used in safety evaluation, and (5) monitoring human populations. Students will be evaluated on their ability to interpret data from animal studies and to estimate risks of human exposure.

661 Data Processing in Preventive Medicine Spring. 2 credits. Open to all veterinary students
The objectives of this course are (1) to familiarize the student with techniques in data base design and management and (2) to demonstrate principles of exploratory data analysis and hypothesis testing using large data bases and/or subsets of data bases relevant to preventive medicine.

663 Veterinary Medicine in Developing Nations Spring. 2 credits. Elective for all veterinary students. S-U grades only. Lectures and discussions, F 2–4. K. A. Schat.
Veterinary and nonveterinary aspects concerning the problems of developing nations will be discussed. Final selection of topics will depend on availability of lectures (faculty).

664 Introduction to Epidemiology Fall. 3 credits. Prerequisite: a previous or concurrent course in statistics. Recommended for seniors and graduate students. S-U grades optional. L. Clark.
Lectures and discussions will deal with the fundamentals of epidemiology, including study design methodologies, analysis, and interpretation of results. Current topics in epidemiology from the fields of nutrition, cancer, infectious and chronic diseases, occupational medicine, and the environment will be reviewed to illustrate the principles and practice of epidemiology.

665 Advanced Epidemiology Fall. 2 credits. Elective for third and fourth-year veterinary students and also a graduate course. Prerequisites: Veterinary Medicine 545 and Statistics and Biometry 601 (College of Agriculture and Life Sciences). Lecture, hours to be arranged. L. Clark, B. Edmonston.
Concepts introduced in Veterinary Medicine 545, Principles of Epidemiology, are further developed. Topics will include design and analysis of case-control and cohort studies, adjustment for confounding variables, sample-size determinations, clinical trials, and medical geography. Recent articles in environmental health, cancer, nutrition, and infectious diseases will be used as illustrations. Students will be expected to prepare term papers for delivery in class.

737 Advanced Work in Animal Parasitology Fall or spring. 1 to 3 credits by arrangement. For advanced undergraduate and graduate students. Prerequisite: Pathology 330 or 537. Letter grades only. J. R. Georgi and other preventive medicine faculty.
Special problems in parasitology and symbiology.

[765 Structure and Function of Protozoan Parasites Spring. 2 credits. Offered alternate years. Not offered 1984; next offered 1985. Lecture, T R, hours to be arranged. D. G. Lindmark.
This course will encompass the metabolism and the structural and functional relationships central to parasite metabolism. An integral part of the course will involve an in-depth treatment of research techniques unique to working with and understanding parasite biochemical cytology. Where appropriate, the mode of action of chemotherapeutic agents used in the treatment of parasite-caused diseases will be investigated. In addition to discussion sessions and lectures, guest speakers will present current problems in their areas of expertise.]

766 Graduate Research Fall, spring, or summer. Credit and hours to be arranged. Open to graduate students and others, by permission of the graduate faculty member concerned. S-U grades only. Graduate faculty of the Department of Preventive Medicine.

767 Immunoparasitology Spring. 2 credits Offered alternate years. Lecture, hours to be arranged. R. H. Jacobson.
This course studies the immune response to representative helminth and protozoan parasites of vertebrate hosts. Emphasis will be placed on the physiological and immunological relationships that play a role in regulation of parasitic infections, in vitro correlates of immunity parasites, immunodiagnosis, and parasite-induced immunopotentiation and suppression will be discussed.

768 Master's-Level Thesis Research Fall or spring. 1 to 6 credits. S-U grades only. Hours to be arranged. Graduate faculty, Preventive Medicine and Diagnostic Laboratory.
This course will enable graduate students in the Department of Preventive Medicine to receive graduate research credits for master's-level thesis research.

769 Doctoral-Level Thesis Research Fall or spring. 1 to 6 credits. S-U grades only. Hours to be arranged. Graduate faculty, Preventive Medicine and Diagnostic Laboratory.
This course will enable students in the Department of Preventive Medicine to receive graduate research credits for doctoral-level thesis research.

786 Graduate Seminar Fall and spring. 1 credit S-U grades only. Hours to be arranged. Graduate faculty, Preventive Medicine and Diagnostic Laboratory.
This course, which is suggested for all graduate students in the Department of Preventive Medicine and the Diagnostic Laboratory, is designed to allow students to prepare and present seminars. It will be handled by a different member of the graduate faculty each semester.

787 The Biology of Parasitism (also Biological Sciences 459) Spring. 2 credits. All students welcome to enroll. S-U grades optional. M W 2:30–3:20. D. L. Wassom.
The biology of parasitism will be explored with emphasis placed on the ecological and evolutionary aspects of host-parasite interactions. Topics to be covered include the evolution of host-parasite systems, the ecology of parasitism, structural and physiological adaptations for parasitism, and the ecology of parasitic disease. The course is open to graduate students and upper-division undergraduates with interest in parasitology, ecology, and human or veterinary medicine.

799 Independent Studies in Epidemiology Fall or spring. 1 to 3 credits. S-U grades optional. Times to be arranged with the instructor. J. G. Babish, L. C. Clark, R. H. Cypess, H. N. Erb, J. M. Scarlett Kranz.
The purpose of this course is to investigate an epidemiologic topic to research problem with one of the instructors. It will provide experience in problem definition, research design, and the analysis of epidemiologic data.

Schedules 1983–84

These schedules are subject to change.

First Year

First Term

August 31–December 10, 1983

Examination period: December 16–22, 1983

Hour	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*
8:00–8.50	502 Developmental Anatomy and Cytology lecture	512 Veterinary Medical Orientation	Elective or free period	525 Veterinary Physiology I lecture	*7:30–8:45* 572 Senior Seminar
9:05–9:55	525 Veterinary Physiology I lecture	525 Veterinary Physiology I lecture	525 Veterinary Physiology I lecture	*9:05–11:30* 500 Gross Anatomy laboratory	525 Veterinary Physiology I lecture
10:10–12:05	*10:10–11:00* 545 Epidemiology lecture *11:15–12.05* 581 Basic Nutrition lecture	*10:10–12:35* 500 Gross Anatomy laboratory	*10:10–12:35* 502 Developmental Anatomy and Cytology lecture	*12:00–12:50* 568 Veterinary Medical Orientation	*10:10–12:35* 500 Gross Anatomy laboratory
1:05—1:55	500 Gross Anatomy lecture		545 Epidemiology lecture		
2:05–4:25	500 Gross Anatomy laboratory	581 Basic Nutrition lecture or laboratory	Elective or free period	502 Developmental Anatomy and Cytology laboraory	Elective or free period

Second Term

January 23–May 5, 1984

Examination period: May 10–18, 1984

Hour	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*
8:00–8:50	569 Veterinary Medical Orientation	504 Neuro-anatomy lecture	Elective	501 Gross Anatomy lecture	*7:30–8:45:* 572 Senior Seminar
9:05–9:55	526 Physiology lecture	503 Histology and Organology lecture	526 Physiology laboratory; section I	526 Physiology laboratory; section II	526 Physiology lecture
10:10–12:35	504 Neuro-anatomy laboratory	501 Gross Anatomy laboratory			503 Histology and Organology laboratory
1:05–1:55		526 Physiology lecture			
2:05–4:25	501 Gross Anatomy laboratory	503 Histology and Organology laboratory	501 Gross Anatomy laboratory	501 Gross Anatomy laboratory	Elective or free period

Second Year

First Term

August 31–December 10, 1983

Examination period: December 16–22, 1983

Hour	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*
8:00–8:50	560 Clinical Methods lecture	516 Bacteri-ology and Mycology lecture	Elective or free period	516 Bacteri-ology and Mycology lecture	*7:30–8:45:* 572 Senior Seminar
9:05–9:55	510 Animal Parasitology lecture	535 General Pathology lecture	*9.05–12:35:* 527 Physiology laboratory; section II Elective or free period; section I	535 General Pathology lecture	510 Animal Parasitology lecture
10:10–12:35	511 Diagnostic Parasitology laboratory	535 General Pathology laboratory		535 General Pathology laboratory	511 Diagnostic Parasitology laboratory
1:05–1:55	527 Physiology lecture	515 Immunol-ogy lecture	527 Physiology lecture	*1:05–4:25:* 527 Physiology laboratory; section I	527 Physiology lecture
2:05–4:25	560 Clinical Methods laboratory; section A *or* 515 Immunology laboratory, section I	515 Immunology laboratory; section II *or* 560 Clinical Methods laboratory; section C	516 Bacteri-ology and Mycology laboratory; section I *or* 560 Clinical Methods laboratory; section B	516 Bacteri-ology and Mycology laboratory; section II	560 Clinical Methods laboratory; section D *or* Elective or free period

Second Term
January 23–May 5, 1984

Examination period: May 10–18, 1984

Hour	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*
8:00–8:50	528 Pharmacology lecture	561 Obstetrics lecture	Elective or free period	528 Pharmacology lecture	*7:30–8:45:* 572 Senior Seminar
9:05–9:55	579 General Medicine lecture	536 Veterinary Pathology II lecture	536 Veterinary Pathology II lecture	536 Veterinary Pathology II lecture	579 General Medicine lecture
10:10–12:35	518 Infectious and Zoonotic Diseases laboratory	536 Veterinary Pathology II laboratory	*10:10–11:00:* 561 Obstetrics lecture *11:15–12:05:* 517 Virology lecture	536 Veterinary Pathology II laboratory	555 Avian Diseases laboratory
1:05–1:55	555 Avian Diseases lecture	528 Pharmacology lecture		518 Infectious and Zoonotic Diseases lecture	
2:05–4:25	517 Virology laboratory and discussion	528 Pharmacology laboratory	561 Obstetrics laboratory; section I *or* Elective; section II	561 Obstetrics laboratory; section II *or* Elective; section I	Elective or free period

Third Year

First Term

August 31–December 10, 1983

Examination period: December 16–22, 1983

Hour	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*
8:00–8:50	587 General Surgery	587 General Surgery	Elective	587 General Surgery	*7:30–8:45:* 572 Senior Seminar
9:05–9:55	571 Clinical Pathology lecture	563 Large Animal Medicine	563 Large Animal Medicine	563 Large Animal Medicine	563 Large Animal Medicine
10:10–11:00	567 Clinical Nutrition lecture	562 Obstetrics lecture	567 Clinical Nutrition lecture	562 Obstetrics lecture	571 Clinical Pathology lecture
11:15–12:05	550 Nuclear Medicine lecture*	583 Small Animal Medicine and Surgery	550 Nuclear Medicine lecture*	583 Small Animal Medicine and Surgery	583 Small Animal Medicine and Surgery
1:05–1:55		529 Clinical Pharmacology lecture		529 Clinical Pharmacology lecture	
2:05–4:25	546 Clinical Orientation; section I *or* 571 Clinical Pathology laboratory; section B	546 Clinical Orientation, section II *or* 571 Clinical Pathology laboratory, section A *or* Applied Anatomy; section II	546 Clinical Orientation; section III *or* 562 Obstetrics laboratory; section C *or* Applied Anatomy; section III	546 Clinical Orientation; section IV *or* 562 Obstetrics laboratory, section D *or* Applied Anatomy; section I	546 Clinical Orientation; section V

*This course will meet from October 23 through December 8.

Second Term

January 23–May 5, 1984

Examination period: May 10–18, 1984

Hour	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*
8:00–8:50	564 Large Animal Medicine	564 Large Animal Medicine	Elective or free period	564 Large Animal Medicine	*7:30–8:45:* 572 Senior Seminar
9:05–11:00	584 Small Animal Medicine and Surgery	584 Small Animal Medicine and Surgery	*9:05–9.55:* 564 Large Animal Medicine *10:10–11:00:* 520 Preventive Medicine lecture	584 Small Animal Medicine and Surgery	584 Small Animal Medicine and Surgery
11:15–12:05	565 Radiology lecture	565 Large Animal Surgery lecture	565 Large Animal Surgery lecture	566 Radiology lecture	520 Preventive Medicine lecture
1:05–1 55	*1:30–6:20:* 582 Large Animal Surgical Technique; section A *or* 586 Small Animal Surgery laboratory; section B	*1:05–6:20:* 582 Large Animal Surgical Technique; section B *or* 586 Small Animal Surgery laboratory; section C	*1:30–6:30:* 582 Large Animal Surgical Technique; section C *or* 586 Small Animal Surgery laboratory; section D	*1:05–6:20:* 582 Large Animal Surgical Technique; section D *or* 586 Small Animal Surgery laboratory; section A	565 Large Animal Surgery lecture
2 05–4:25		506 Applied Anatomy; section I *or* Elective	506 Applied Anatomy; section II	506 Applied Anatomy; section III *or* Elective	Elective or free period

Fourth Year

First Term

August 31–December 10, 1983

Hour	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*	*Saturday*
8:00–8:50	Elective	Elective	Elective	Elective	*7:30–8:45:* 572 Senior Seminar	Clinic blocks*
9:05–12:35	Clinic blocks*	Clinic blocks*	Clinic blocks*	Clinic blocks*	Clinic blocks*	
1:05–1:55						
2:05–4:25	Clinic blocks*	Clinic blocks*	Clinic blocks*	Clinic blocks*	Clinic blocks*	

Second Term

January 23–May 5, 1984

Hour	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*	*Saturday*
8:00–8:50	Elective	Elective	Elective	Elective	*7:30–8:45:* 572 Senior Seminar	Clinic blocks*
9:05–12:35	Clinic blocks*	Clinic blocks*	Clinic blocks*	Clinic blocks*	Clinic blocks*	
1:05–1:55						
2:05–4:25	Clinic blocks*	Clinic blocks*	Clinic blocks*	Clinic blocks*	Clinic blocks*	

*Clinic blocks include major blocks, which last for four-week periods, and minor blocks, which each last two weeks. See pp. 38–39 for a listing of these courses.

Teaching Hospital Rounds

Fall Term: August 31–December 10, 1983

Hour	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*
7:30–8:00	SAC Patient Rounds Surgery G131	SAC Patient Rounds Medicine G131	LAC Patient Rounds Medicine Large Animal Clinic	LAC Patient Rounds Surgery Large Animal Clinic	*7:30:* Senior Seminar Auditorium
8:00–9:00	Special Topics in Pathology E215	Surgical Pathology Seminar E215		Gross Pathology Review E215	
9:00–10:00				Infectious Disease Rounds Large Animal Clinic	
12:30–1:00		*12:25:* Radiology Rounds G131	*12:15:* Pathology Bottom Line C207		Neurology/ Ophthalmology Rounds Large Animal Clinic
4:30			Hospital Grand Rounds G3		

Spring Term: January 23–May 5, 1984

Hour	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*
7:30–8:00	SAC Patient Rounds Surgery G131	SAC Patient Rounds Medicine G131	LAC Patient Rounds Medicine Large Animal Clinic	LAC Patient Rounds Surgery Large Animal Clinic	*7:30:* Senior Seminar Auditorium
8:00–9:00	Pathology State of the Art E215	Surgical Pathology Seminar E215		Gross Pathology Review E215	
9:00–10:00				Infectious Disease Rounds Large Animal Clinic	
12:30–1:00		*12:25:* Radiology Rounds G131	*12:15:* Pathology Bottom Line C207		Neurology/ Ophthalmology Rounds Large Animal Clinic
4:30			Hospital Grand Rounds G3		

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Summers, Brian A., B.V.Sc., M.Sc., Ph.D.; Pathology
Walton, Donna K., B.S., D.V.M.; Medicine
Wassom, Donald L., B.S., Ph.D.; Parasitology
Weiland, Gregory A., B.S., Ph.D., Pharmacology
White, Maurice E., D.V.M., Medicine
Zimmer, James F., D.V.M., Ph.D.; Internal Medicine

Staff

Senior Research Associates and Specialists

Bennett, Gary J., D.V.M.; Field Veterinarian (Canton)
Concannon, Patrick W., M.S., Ph.D.; Physiology
Cone, James F., D.V.M.; Field Veterinarian (Kingston)
Dean, William F., B.S.A., M.S., Ph.D.; Duck Research Laboratory (Eastport)
Downing, D. R., B.S.; Preventive Medicine
Drazek, Francis J., D.V.M.; Diagnostic Laboratory
Ebel, Joseph G., Ph.D.; Equine Drug Testing (Buffalo/Batavia)
Fabricant, Catherine G., B.S., M.S.; Veterinary Microbiology
Fullmer, Curtis S., B.S., M.S., Ph.D., Physiology
Gilmartin, John E., B.S.; Assistant Director of Laboratory Animal Medicine
Haider, S. A., D.V.M., M.S., Ph.D.; Avian and Aquatic Animal Medicine (Eastport)
Hayes, Gerald L., D.V.M.; Field Veterinarian (Earlville)
Hillman, Robert B., A.B., D.V.M., M.S.; Clinical Sciences
Hiscock, Bruce F., B.S., Ph.D.; Equine Drug Testing (Saratoga Springs)
Holmes, Dorothy F., D.V.M., Ph.D.; Veterinary Microbiology
Hopkins, Stephen E., Ph.D.; Equine Drug Testing (Monticello)
Kemen, Mathias J., Jr., D.V.M., M.S.; Veterinary Microbiology
Layton, Herbert W., M.S., Ph.D.; Avian and Aquatic Animal Medicine (Eastport)
Mitchell, Grayson B., B.S., D.V.M.; Field Veterinarian, Avian and Aquatic Animal Medicine (Kingston)
Poore, Edward R., B.Sc., D.Phil.; Clinical Sciences
Sandhu, Tirath S., B.V.Sc., M.S., Ph.D.; Field Veterinarian (Eastport)
Schulte, Hal F. III, M.S., D.V.M.; Field Veterinarian (Ithaca)
Sellick, Gene W., D.V.M.; Field Veterinarian (Springville)
Shin, Sang J., B.S., D.V.M.; Diagnostic Laboratory
Wager, Leslie A., D.V.M.; Director, Mastitis Program (Canton)
Wentworth, Richard A., B.S., M.S., Ph.D.; Physiology
Wuori, Leo A., D.V.M.; Cornell Feline Health Center

Teaching Hospital

Director: R. Kirk
Assistant Dean and Hospital Administrator: R. Rostowsky
Assistant to the Director: G. Clark
Pharmacy: L. Rivkin
Medical Records: E. Slater
Animal Care Personnel: R. Lawrence

Sections

Medicine: B. C. Tennant, Chief (internal medicine, gastroenterology)

Faculty: S. Center (internal medicine), A. de Lahunta (neurology), S. Dill (internal medicine), J. Edwards (cardiology), F. H. Fox (internal medicine, obstetrics), C. Guard (internal medicine), W. E. Hornbuckle (internal medicine), K. A. Houpt (animal behavior), F. A. Kallfelz (clinical nutrition, internal medicine), T. Kern (ophthalmology), J. M. Kingsbury (poisonous plants), R. W. Kirk (dermatology, internal medicine), M. Petersen (internal medicine), P. Power (internal medicine), J. F. Randolph (internal medicine), W. C. Rebhun (internal medicine, ophthalmology), R. C. Riis (ophthalmology), D. W. Scott (dermatology), M. C. Smith (internal medicine), D. Walton (dermatology), M. E. White (internal medicine), J. F. Zimmer (internal medicine, gastroenterology)

Staff: H. F. Schulte (mastitis control)

Residents: K. H. Baum, P. R. Dinsmore, D. J. Jasko, L. Jorgensen, L. J. Laratta, V. W. Pentlarge, J. A. Perdrizet

Surgery: H. J. Harvey, Chief (soft tissue)
Faculty: M. A. Collier, J. A. Flanders (soft tissue), S. Fubini, D. R. Gilmore (orthopedics), R. P. Hackett, J. E. Lowe, R. Todhunter, E. J. Trotter (orthopedics)
Residents: D. G. Bristol, C. Carberry, D. Clark, P. Tithof

Anesthesiology: C. E. Short, Chief
Faculty: R. D. Gleed
Residents: W. A. Horne, N. Matthews

Theriogenology: P. Nathanielsz, Chief
Faculty: M. Blue, P. W. Concannon, R. H. Foote, C. E. Hall, W. Hansel, R. B. Hillman, A. J. Winter, G. Woods

Clinical Pathology: R. M. Lewis, Chief
Faculty: J. T. Blue, T. French
Residents: G. Freden, S. Shelly, B. von Beust

Radiological and Physical Diagnostics: F. A. Kallfelz, Chief (nuclear medicine)
Faculty: A. E. Dietze (radiology), E. L. Gasteiger (electrodiagnostics), J. Geary (radiology), V. T. Rendano, Jr. (radiology) (on leave 1983–84), J. R. Stouffer, D. N. Tapper
Senior Lecturer: G. D. Ryan

Pathology: R. M. Lewis, Chief

Interns

Ambulatory Clinic: M. Halpern

Anesthesiology: J. Harrison

Large Animal Clinic: D. Craig, R. Hanson, Jr., J. Parker

Small Animal Clinic: P. Kraai, M. Kramer, C. Misetich, F. Smith, D. Stoffregen

Library

Whitaker, Susanne K., A.B., M.L.S.; Veterinary Medical Librarian

Specialists and Technicians

Conklin, Marshall E., Farrier
Dembinski, Reinhold, Research Technician
Hinman, H. Donald, Director, Biomedical Electronic Service
Johnson, Richard C., Assistant Pharmacist
Lauber, John, Visual Aids Technologist
Rivkin, Lawrence S., Pharmacist
Ryan, Gerald D., Radiology Lecturer

Standing Committees of the College Faculty

General Committee

S. G. Campbell (1983–86), Chairman
D. M. Noden (1983–84)
W. C. Rebhun (1982–85)
W. S. Schwark (1981–84)
J. F. Zimmer (1982–85)

Graduate Field Executive Committee

N. L. Norcross, Graduate Field Representative
J. F. Cummings (1984)
F. W. Lengemann (1983)
K. A. Schat (1985)
G. W. G. Sharp (1986)
L. P. Krook, ex officio

University Tenure Appeals Committee

S. G. Campbell (1981–86)
L. E. Carmichael (1983–88)
G. L. Cockerell (1981–84)
A. Dobson (1982–87)
W. O. Sack (1981–85)

Admissions Committee

R. A. Corradino
D. L. Graham
R. P. Hackett, Jr.
K. A. Houpt
R. C. Riis, Chairman
H. F. Schryver
D. W. Scott

Committee on Curriculum*

E. N. Bergman
J. Fabricant
R. P. Hackett, Jr.
H. J. Harvey
D. F. Holmes
W. O. Sack
D. O. Slauson
R. V. H. Pollock, ex officio
C. G. Rickard, ex officio

*Student representatives are elected from each class.

Committee on Deficient Students

R. C. Riis, Chairman
K. W. Beyenbach
G. L. Cockerell

Committee on Student Conduct

S. G. Campbell, Chairman
F. H. Fox
J. M. King
G. Lust
J. F. Randolph

Class Advisory Committees

Class of 1987

E. N. Bergman
S. G. Campbell
B. J. Cooper
R. A. Corradino
J. F. Cummings
A. deLahunta
H. E. Evans
T. R. Houpt
J. Kranz
R. M. Lewis
D. G. Lindmark
D. M. Noden
W. S. Schwark

Class of 1986

R. G. Bell
S. G. Campbell
R. B. Hillman
W. E. Hornbuckle
F. A. Kallfelz
J. M. King
R. M. Lewis
D. G. Lindmark
M. C. Peckham
W. O. Sack

Class of 1985

J. G. Babish
G. L. Cockerell
J. F. Cummings
H. N. Erb
K. A. Houpt
R. H. Jacobson
N. A. LaFaunce
D. H. Lein
V. Rendano

Class of 1984

H. E. Evans
H. J. Harvey
D. F. Holmes
G. C. Poppensiek
J. F. Timoney

Committee on Scholarships

J. R. Georgi
T. J. Kern
R. M. Lewis
D. M. Noden
M. C. Peckham
D. S. Postle
J. C. Thompson, Jr.
A. J. Winter

Committee on Animal Use and Care

R. M. Lewis, Chairman
B. W. Calnek
G. L. Cockerell
J. H. Gillespie
W. Hansel
D. D. McGregor
P. Nathanielsz
D. M. Noden
G. W. G. Sharp
D. L. Wassom
J. E. Gilmartin, ex officio
F. W. Quimby, ex officio

Committee on College Library

J. Fabricant, Chairman
M. J. Appel
R. H. Jacobson
W. O. Sack
M. C. Smith

Faculty Council of Representatives

W. L. Castleman (1983–86)
A. Dobson (1981–84)
G. M. Dunny (1983–86)
H. N. Erb (1982–85)
G. A. Maylin (1982–85)
G. C. Poppensiek (1981–84)

Pharmacy and Therapeutics Committee

W. E. Hornbuckle, Chairman
M. A. Collier
R. D. Gleed
W. C. Rebhun
L. S. Rivkin
W. S. Schwark
M. E. White
R. C. Johnson, ex officio
R. Rostowsky, ex officio

SUNY Senate

G. Lust, Senator

Special Committees 1983–84

Seventy-sixth Annual Conference for Veterinarians

January 10, 11, 12, 1984

M. A. Collier
D. F. Holmes
J. L. Randolph
V. Rendano
D. W. Scott
M. E. White
C. E. Short, ex officio

Senior Seminar Committee

D. S. Postle, Chairman
H. N. Erb
D. L. Graham
H. J. Harvey
W. C. Rebhun
M. C. Smith

Biohazard Safety Committee

R. A. Corradino, Chairman
J. G. Babish
J. F. Timoney
F. W. Quimby
C. G. Rickard, ex officio

Computer Advisory Committee

E. Loew, Chairman
J. M. Lewkowicz
C. G. Rickard
E. Slator
M. E. White

Student/Faculty Liaison Committee

Student representatives and faculty members are elected by the student body in the fall. One student serves as chairperson. Membership lists will be circulated at that time.

Graduate/Faculty Liaison Committee

Graduate students select the committee.

Honor Code Committee

Student and faculty representatives are elected by the student body.

Note: A short summary report of the special committees should be given to the secretary of the college in April for transmittal to the faculty at the time of the faculty meeting in May.

Cornell Chapter of S.C.A.V.M.A., 1983–84

President: Kathleen Hefner, class of 1985
Vice President: Arlyne Salcedo, class of 1985
Secretary: Ann Hohenhaus, class of 1985
Treasurer: Stephen Stoddard, class of 1985
Advisers: Dr. Charles Short and Dr. William Horne

Graduate Students Association

The association of graduate students at the College of Veterinary Medicine is an organization designed to provide a change of pace from the graduate students' rigorous schedule. Various social functions, an annual seminar, and other informal gatherings are all part of the association's calendar.

Students

Graduate Students, Fall 1983 (including Fields of Veterinary Medicine, Immunology, Physiology, Toxicology, Microbiology, Nutrition, and Zoology)

Note: Students are U.S. citizens unless otherwise indicated.

Abbott, David P. (Australia), B.V.Sc., M.V.S.
Baines, Joel D., B.S., V.M.D.
Baldwin, Charles A., B.S., D.V.M., M.S.
Bandarchi, Jafar (Iran), A.B.
Barlough, Jeffrey E., B.S., D.V.M.
Bigelow, Judith L., B.S.
Blackburn, Daniel, B.S., M.S.
Boudreaux, Mary K., D.V.M.
Boyd, Lee Ellen, B.S., M.S.
Brooks, Barbara, B.S., M.S.
Chiang, Hui-Ling (Taiwan), B.S., M.S.
Christie, Peter, B.A., M.S.
Conner, Margaret, B.S., M.S.
Covey, Thomas, B.S.
Crosetti, Carlos F. (Argentina), D.V.M.
Crump, Anne L., B.A.
Curtis, Charles R., B.S.
Davies, Christopher J., B.S., D.V.M.
Denholm, Laurence J. (Australia), B.V.Sc.
Dobrenis, Kostantin (Canada), B.Sc.
Donis, Ruben O. (Argentina), D.V.M.
Durham, Stephen K., B.S., D.V.M.
Eggers, Diane K., B.S.
Enriquez, Francisco J. (Mexico), M.D.
Frank, David A., B.S.
Frederick, Kimberly Ann, B.S.
Galan, Jorge (Argentina), D.V.M.
Gibson, George, B.S., D.V.M.
Gloobeh, Haniah (Costa Rica), D.V.M.
Graham, Elizabeth, B.S., D.V.M.
Hickey, Gerard (Ireland), M.V.B.
Higgins, William, D.V.M.
Johnson, Brian, B.S.
Lacey, Steven, B.S., M.S.
Landicho, Elito (Philippines), D.V.M., M.S.
Landy, Ronald B., B.S., V.M.D.
Leighton, Frederick, B.S., D.V.M.
Letwin, Bruce, B.S.
Loeffler, David, B.V.Sc.
McCann, Joseph (Scotland), B.S., M.S.
McDonald, Thomas, B.S.
McDonough, Patrick, B.S., M.S.
Mishra, Prabin (India), B.S., B.V.Sc., M.S.
Mitchell, William J., B.S., D.V.M.
Mohr, Frederick, B.S., D.V.M.
Moise, Nancy S., B.S., D.V.M.
Murphy, Christopher, B.S., D.V.M.
Muscarella, Donna, B.S., M.S.
Neuenschwander, Suzanne, B.S., M.S., D.V.M.
Parrish, Colin (New Zealand), B.Sc., N.Z.C.S.
Pian-Smith, May, B.A.
Quirk, Susan, B.S., M.S.
Rankin, Bruce, B.A.
Roth, Lois, B.S., D.V.M.
Rudman, Rebecca, B.A., M.S.

Sajewski, Daniel, B.A.
Sheu, Ching-Chung (Taiwan), B.V.M., M.S.
Smith, Paige, B.S., D.V.M.
Spitsbergen, Jan, B.S., D.V.M.
Stahlbaum, Cathi, B.S., M.S.
Stoddart, Cheryl, B.S., M.S.
Temple, Miles R., B.S.
Thompson, Mark, B.S., M.S.
Trotter, Karen, B.S., M.S.
Ullmann, Margaret, B.S.
Wang, Ching-Hua (People's Republic of China), B.S., M.D., M.S.
Wanger, Audrey, B.S., M.S.
Wissler, Richard, M.D.
Wilkinson, John E., B.S., M.S., D.V.M.
Yason, Carmencita (Philippines), D.V.M., M.S.
Youngren, Susan, B.A.
Zhu, Duzhang (People's Republic of China), M.D.

Fourth Year, Class of 1984

Atz, Joshua Max, NY
Babuska, Lenka, MD
Blackmore, Diane E., MD
Brooks, Lawrence C., NJ
Brown, Cynthia A., NY
Brummer, David G., NY
Bushmich, Sandra L., MA
Butt, Mark T., MD
Button, Marlene J., NY
Cain, Ronnie M., DE
Campbell, Doris A., NY
Cape, Lysanne, NY
Crossman, Robin L., VT
Dennett, Debra L., NY
Deppen, Debra J., NJ
Easle, Mary T., NY
Edwards, Lisa R., ME
Ehrhardt, Eric E., NJ
Fallon, Lynne L., DE
Fallon, Timothy, NY
Feibusch, Karen R., NY
Fessler, Anne Payne, NY
Garrett, Linda J., NY
Gill, Thomas W., NY
Giusti, Susan M., CT
Graulich, Joan C., NY
Guida, Louis, NY
Hall, Kathleen S., CT
Hanlon, Natalie M., NY
Isaac, Jan M., NY
Johnson, Ellen, NY
Kearney, David W., NY
Keenan, Daniel P., NY
Kiklevich, J. Veronika, NY
Kolb, Gerard E., NY
Labuszewski, Teresa, NY
Liddell, Warren H., MD
Linn, Kathleen A., NY
Lister, Sarah A., NY
Lowenthal, Peter M., NY
McKenzie, Geoffrey I., CT
McTisue, Michael P., NY
Mandracchia, Teresa A., NY
May, Laura R., NY
Meyer, Todd M., CT
Morrison, Susan A., NY
Nelson, Pamela M., NY
Nolte, Susan M., NY
Norton, Bonnie L., NY
O'Neil, Shawn P., NY
Ochrymowych, Christina M., NJ
Opperman, Diane, NY
Ostrum, Peter G., NJ
Pepper, Carol E., NY
Price, G. Sylvester, NY
Raleigh, Kimberly A., NY
Reichenstein, Allan S., NY
Ricker, Stephanie L., NJ
Roberts, Lucia A., RI
Rooney, Monica E., NH
Rubin, Dale S., NY
Scheffler, Barbara D., NY
Schroeder, Henry A., NY
Schutzengel, Daniella J., NJ
Shins, Jerald P., MA
Shoulberg, Nina L., NY
Smith, Kathryn, J., NY
Sorresso, Giovanna P., NY
Spindel, Edward L., NY
Tashjian, Joseph J., NY
Tenney, Laura, NY
Thompson, Donald P., NY
Tolchin, Patricia A., NY
Tucker, Geoffrey W., NY
Tupac, Gail L., MD
Waters, David J., PA
Weinberger, Laura L., PA
Wiltse, Darice B., NY
Wimsatt, Jeffrey H., NY
Wolff, Peregrine L., VT
Wopperer, Mary M., NY

Third Year, Class of 1985

Bamberger, Michelle J., NJ
Bigelow, Natalie S., NY
Blomquist, Richard C., NY
Bokman, Susan L., NY
Brayton, Cory F., NY
Brower, Richard S., NY
Brum, Douglas E., NY
Burke, Elizabeth, PA
Card, Claire E., NY
Cattano, Steven P., NY
Chmielewicz, Mark S., NY
Coen, Paul R., NY
Cohn, Douglas L., NY
Colbert, Joyce L., DE
Cole, Susan H., NY
Cottrell, Walter O., MD
Curtis, Scott, ME
D'Alonzo, Joan, NJ
Darish, Sarah, NY
Debitetto, James, NY
Dewey, Teresa, DE
Dietrich, Lisa, NY
Forsyth, Cheryl, CT
Freeman, Lisa, NY
Friedman, Deborah, MA
Fritz, Derek, NH
Grosjean, Claude, NY
Heffelfinger, Joan, CA

Hefner, Kathleen, NY
Hoffman, Andrew, DE
Hohenhaus, Ann, NY
Hurd, Amy, NY
Karcher, Lance, NY
Kelly, Stephen A., NY
Kenney, Marguerite, NY
Kerr, Susan, NY
Kimmel, Wendy, NY
King, Mary, NY
Kintzer, Peter, NY
Kraybill, Robert, MD
Larocque, Denise, NY
Leveille, Cynthia, MA
Lindner, Donna, NY
Lummis, Mary, CT
McCoy, Teresa, NY
Mansfield, Steven, NY
Miller, Christine, ME
Miller, Lora, PA
Morris, Julie, NY
Murphy, Catherine, NY
Murphy, Elizabeth, NY
O'Connor, Leo, NY
Overmeyer, Susan, NY
Padrid, Philip, NY
Parisi, Joseph, NY
Penson, Harry, NY
Plante, David, NY
Pomerantz, Alan, NJ
Ramirez, Iris, NY
Riback, Stephen, NY
Rose, Marcy, NY
Roth, Michael, NY
Roy, Lynn, NY
Salcedo, Arlyne, CT
Scharf, Ronald, NY
Seaman, Grant, NY
Sexauer, Margaret, NY
Sheldon, Joan, VT
Stoddard,Stephen, NY
Stoner, John, MD
Stranger, Carolyn, NY
Tobin, Jennifer, NY
Tuthill, Douglas, NY
Verbin, Laura, NY
Wallace, Roberta, NY
Walley, Rebecca, NY
Watson, James, NY
White, Teri, NJ
Zgoda, James, NJ
Zimmerman, William, NJ

Second Year, Class of 1986

Ackermann, Susan R., NJ
Ambrosi, Lisa M., NY
Anderson, Mark R., NH
Armao, Christine, NY
Ashford, David A., NY
Bayha, Renee, NY
Blumenstock, Kristan L , NY
Bokman, Stephen H., NY
Bookbinder, Paul F., NY
Brown, Eve C., NY
Brown, W. James, NY
Bump, Jadene L., VT
Byer, David L., NY
Castro, Cecilia, MA
Cleary, Susan B., MA
Davis, Jocelyn L., NY
Dennis, Jill K., RI
DeVito, Angela E., NY
Dibs, Elizabeth A., NY
Dring, Lorri A., NY
Eastman, Kevin, NY
Feltz, Timothy P., NY
Friedlander, Joseph M., NY
Gschrey, Edward J., NY
Hale, David W., NY
Hall, Kay M , SD
Hartelius, Eric C., NY
Hudson, Roderick J., NY
Ialeggio, Donna M., NY
Johnson, William, NY
Kaplan, Scott D., NY
Kirk, Pamela J., NY
Kutrybala, James P., NY
Leck, Gregory P., CT
Lindsay, Mary M., NJ
Lipman, Janet L., NY
Livesay-Wilkins, Pamela A., NY
McEntee, Margaret C , NY
McNamara, Carolyn V., NY
Massaro, James G., MA
Montgomery, Susan P., NY
Moorman, Diane M., NY
Moy, Nancy H., NY
O'Brien, Kathleen J., NY
Olm, Dale D., NJ
Orr, Dennis C , NY
Payer, David C., MA
Pierce, Kelvin D., NY
Pierok, Anne L., NJ
Plunkett, Timothy J., CT
Puccio, Frank A., NY
Raditic, Donna M , NY
Reppert, Pamela, NY
Reynolds, Arleigh J., NY
Riddle, Shelby W., NY
Robinson, James D., NY
Ross, J. Thomas, NY
Schafer, Michael T., NY
Schulmeyer, Raymond M., MD
Seavey, Michelle L., NY
Sheldon, Karen E., NY
Shivy, Diane R , NJ
Skrabalak, Dale S., NY
Slater, Margaret R., MA
Smith, Jeffrey J., NY
Spitzer, Jessica J., NY
Swanson, Lynne V., NY
Tanneberger, Michael J., NY
Taylor, Brad, AR
Temple, Susan C , NY
Tonarely, Jorge J., PR
Trepanier, Lauren A., NY
Vanderwall, Dirk K., NY
Violette, John B , ME
Wierzbicki, Lisa J., NY
Wittner, Diane C., NY
Zeifman, Anne V., NY
Zweiter, Sharon A., NY

First Year, Class of 1987

Altieri, Richard J., NY
Bank, Sheila, NY
Berghash, Stephen R., NY
Biederman, Diane R., NY
Bimbo, Annemarie, VT
Blackshear, Pamela E., NY
Bors, Monica, MD
Bostley, Timothy S., NY
Brancato, Richard F., NY
Brandt, Leanne M., MI
Brown, Carolyn R., NY
Bruno, Donald J., NJ
Burns, Gilbert A., NH
Burrington, D. Bradford, CT
Campbell, Marcia E., NY
Carbone, Lawrence G., NY
Carter, Joanne C., NY
Cheraskin, Jeri L., NY
Dairns, Mark A., NY
Dillingham, Stephanie L., NY
Dobbs, Constance E., NY
Drouin, Luba, NY
Dyroff, Mary C., NY
Ehrenson, Sarah F., NY
Fine, Jack, PA
Freedman, Karen S., MD
Fruchter, Alan M., NY
Glaser, Amy L., NJ
Gruppo, Barbara J., NY
Hollenbeck, Diane M., NY
Horn, Darrell C., NJ
Huber, Douglas J., NY
Juarbe-Diaz, Soraya V., PR
Kern, Maryanne S., NJ
Klein, Catherine M., NY
Krick, Scott A., PA
LaPorta, Paul K., NY
Leonard, Jo-Ann, NY
Lowry, Nancy A., NY
McCarthy, Rebecca M., NY
MacDonald, Janet M., NY
Malinowski, Susan R., CT
Mallinson, Kim I., NY
Mankowski, Joseph L., NY
Mansfield, Keith G., NH
Marchell, Thomas F., NY
Meunier, James T., NY
Millis, Darryl L., NY
Mosher, Charmaine C., NY
Myers, Nathaniel C., NY
Neilans, Mary R., NY
Nemzer, Penny S., NY
Pazderski, Noreen A., NY
Pepper, Andrew H., NY
Perez, Maritza M., PR
Prouty, Carolyn D., MD
Roeder, Dolores A., NY
Rosenfeld, Arthur E., NY
Ruggles, Alan J., NY
Sandbank, Tracey F., NY
Sapienza, John S., NY
Saunders, Maureen S., NY
Schimmel, Scott M., NY
Schott, Pamela J., NJ
Smiley, Laura, NY
Stephan, Michael W., NY
Stover, Susan C., NY
Szczotka, Susan M., NJ
Thacher, Wendy F., MD
Thompson, Jeffrey E., NY
Tobias, Todd A., NY
Todd, Stephanie E., NY
Tusch, Claire V., NY
Vleuten, Timothy P., NY
Weitzman, Andrew M., NY
West, Karen, VT
Winnacott, Neal R., NJ
Wojcicki, Cynthia A., NY
Zyry, Donna M., NY

Cornell University

Index

Academic calendar: current, 2; tentative 1984–85, 64
Administration: college, 53; University, 51
Admission, 8; graduate, 11; University requirements, 11
Advanced standing, 11
Advisory Council, 52
Agriculture and Life Sciences, College of, courses in. See Combined courses
Anatomy, 23
Animal experience requirements, 9
Application procedures, 10
Avian and aquatic animal medicine, 33

Baker, James A., Institute for Animal Health, 8
Board of trustees, 51

Clinical Nutrition Program, 8
Clinical sciences, 34
Clinical service courses, 38
Combined courses, 11
Committees of the college, 56
Conduct of students, 21
Cornell chapter of S.C.A.V.M.A., 58
Course descriptions, 23
Curriculum, 19

Diagnostic Laboratory, 39
Dining services, 21
Double registration See Combined courses

Expenses. See Finances

Facilities: research, 6; clinical, 8
Faculty, 53
Fees, 13
Feline Health Center, 6
Finances, 13
Financial aid, 13

Graduate School degree programs, 12
Graduate students, 58
Graduation requirements, 18

Handicapped, services for, 20
Health services, 20
History of the college, 5
Honor societies, 20
Housing, 20

Insurance, accident and sickness, 20

Legal requirements for practice, 20
Library, 6
Living costs See Finances
Loans, 13

Mastitis Control Program, 7
Microbiology, 31
Muenscher Poisonous Plants Garden, 8

Nutrition, 8

Pathology, 29
Pharmacology, 24
Physiology, 24
Preventive Medicine, 39
Prizes, 16

Reapplication, 11
Refund policies, 13
Research: facilities, 6; bovine, 6; equine, 6; feline, 6; poultry disease and aquatic animal disease, 7

Schedules 1983–84, 43
Scholarships, 14
Staff, 55
Students, 59

Teaching Hospital, 55
Trustees: Cornell University, 51; State University of New York, 52
Tuition, 13

University administration, 51
University requirements for admission, 11

Tentative Cornell Academic Calendar

1984–85

Registration	Thursday and Friday, August 30 and 31
Labor Day (University holiday)	Monday, September 3
Fall term instruction begins	Tuesday, September 4
Fall recess:	
Instruction suspended, 1:10 p.m.	Saturday, October 13
Instruction resumed	Wednesday, October 17
Thanksgiving recess:	
Instruction suspended, 1:10 p.m.	Wednesday, November 21
Instruction resumed	Monday, November 26
Fall term instruction ends, 1:10 p.m.	Tuesday, December 11
Final examinations begin	Saturday, December 15
Final examinations end	Saturday, December 22
Registration	Thursday and Friday, January 24 and 25
Spring term instruction begins	Monday, January 28
Spring recess:	
Instruction suspended, 1:10 p.m.	Saturday, March 30
Instruction resumed	Monday, April 8
Spring term instruction ends, 1:10 p.m.	Saturday, May 11
Final examinations begin	Thursday, May 16
Final examinations end	Saturday, May 25
Commencement Day	Sunday, June 2

The dates shown in the academic calendar are subject to change at any time by official action of Cornell University.

In enacting this calendar, the University has scheduled classes on religious holidays. It is the intent of the University that students missing classes due to the observance of religious holidays be given ample opportunity to make up work.

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